

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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CW Photo by P. Gillin

Ear to the Sky

Aided by a computer, this radio telescope at a Massachusetts observatory is listening for messages from other civilizations. Story on Page 20.

Lessors to Fight Tax Changes That Would Cost Users More

By Bill Laberis
CW Staff

WASHINGTON, D.C. — The Computer Dealers and Lessors Association is preparing to battle the U.S. Internal Revenue Service, which the CDLA claims is about to issue new tax regulations that will result in users facing more costly computer equipment leases.

In particular, the 200-member CDLA will lobby to block a change in present tax regulations that make it a matter of routine for lessors and users to buy and sell tax deductions for equipment depreciation. A paid lobbyist, funding for whom was overwhelmingly approved at the CDLA's recent spring meeting, will carry the CDLA banner in its attempt to maintain the status quo regarding so-called sale-leaseback transactions.

According to current IRS regulations, a year's worth of depreciation on a piece of computer equipment accrues to the person or company that owns the equipment at the end of the calendar tax year, notwithstanding how short a time the equip-

ment was owned. This situation has encouraged users who anticipate finishing the year with little taxable income to sell their equipment at year-end to a leasing company. The leasing company could take advantage of the tax deduction because of its greater taxable income. Thus, a user would sell his tax deduction to a lessor in return for a discounted lease on the same piece of equipment.

The CDLA claims the IRS is preparing to release new regulations that would apportion the much-valued depreciation deductions on the basis of how long the equipment was actually held. So if a user owned a computer for 11 months and then sold it to a lessor, the user would be required to take 11 months' worth of depreciation deduction, and the lessor would receive only one month's worth.

In a letter to the IRS, CDLA Executive Director James Benton said the regulation he believes the IRS wants to promulgate "further complicates tax accounting and penalizes most lessees engaged in

(Continued on Page 6)

Threatened Standards Effort

Senate Panel Rejects NBS Budget Cut

By Jake Kirchner
CW Washington Bureau

WASHINGTON, D.C. — A U.S. Senate committee has voted to reject a White House proposal to cut by 70% the fiscal 1984 budget for the National Bureau of Standards' DP standards office.

Acting late last month, the Senate Commerce, Science and Transportation Committee approved a bill authorizing a \$10 million 1984 budget for the

NBS Institute for Computer Sciences and Technology, a sum equal to 1983's level. The action still must be acted on by the full Senate and the House of Representatives.

The administration has defended its proposed \$3 million ICST budget by arguing that the work the NBS office performs in developing federal computer and telecommunications standards and in working with domestic and international standards organizations should be handled by the private sector [CW,

(Continued on Page 9)

Justice Endorses AT&T Reorganization

By Phil Hirsch
CW Washington Bureau
WASHINGTON, D.C. — AT&T's proposed reorganization plan was endorsed by the U.S. Justice Department late last month. The endorsement was made subject to a number of minor changes

that AT&T immediately accepted.

Interested parties, including several from within the computer industry, now have an opportunity to comment on the plan. Their statements are due to be filed next week with Federal District Court Judge Harold H. Greene, who is

presiding over AT&T's divestiture.

Greene will then decide whether the plan is acceptable. If it is, divestiture will occur next Jan. 1. It is not known how long Greene will take to make his decision.

These are the major provisions of the reorganization plan:

- The 22 Bell operating companies to be divested will be grouped into seven regional holding companies. Common stock in the regional holding companies will be distributed to AT&T stockholders.

- Assets will be divvied up between AT&T and the operating companies on the basis of predominant use. The Bell system personnel also will be assigned on the basis of whether they work predominantly for an operating company or for the undivested part of AT&T. The plan provides for a one-year "true-up time" following divestiture, during which adjustments in personnel and property

(Continued on Page 8)

AT&T to Sell Terminal Equipment

WASHINGTON, D.C. — AT&T will begin selling business customers the terminal equipment they now rent as soon as the equipment is detariffed, the company said last week. American Bell, Inc., AT&T's separate subsidiary, will be the sales agent and set national prices for each item.

The announcement was believed part of a continuing campaign by AT&T to persuade the Federal Communications Commission to authorize the detariffing of embedded customer premises equipment before Jan. 1, when 22 Bell operating companies are to be divested.

Embedded equipment to be offered for sale consists of the Model 100, 200 and 300 modems; Dataphone II, Dataspeed 40 and 4540 terminals; printers; and the Model 43 and 1000 teleprinters, plus teleconferencing equipment. By Jan. 1, 1986, AT&T said, "almost all categories of embedded electromechanical [customer premises equipment] will be offered for purchase."

No date has been set for announcing the prices of this embedded terminal equipment. An AT&T spokesman said he doubts they will be announced before the equipment is detariffed.

Training Outlay Static in '82, Survey Finds

By Marguerite Zientara
CW Staff

BETHESDA, Md. — Although overall DP budgets soared over the last year, the DP training budget has stabilized. And that may spell trouble in the future, according to Brandon Systems Institute, Inc.

BSI recently released the results of its 1982 DP Training Survey, completed by 336 people out of 1,497 who received the survey. Roughly two-thirds of the respondents are DP trainers and the majority of the rest are managers in charge of training and other functions in U.S. and Canadian organizations of all sizes.

The survey found that their annual DP budgets shot up 35% in 1982 to an average \$24.7 million, and the DP training budget stabilized at 1.2% of the DP department budget, the same level as last year.

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COMPUTERWORLD

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Adds Nine Decision-Makers

IBM Revamps Top Management

By Bill Laberis
 CW Staff

ARMONK, N.Y. — In an effort to increase the involvement of unit managers in the decision-making process, IBM last week realigned its corporate management structure, replacing its top management organizations — the former Corporate Office and the Corporate Management Committee.

The changes, which were announced by company Chairman John R. Opel, result in the creation of a 16-member Corporate Management Board that will "help IBM capitalize on future growth opportunities." The two units it replaced, organized in 1965, were each less than half this size and were comprised of the same members.

The Corporate Management Board

will have two permanent committees: the Business Operations Committee, responsible for the company's overall business strategy, and the Policy Committee, responsible for establishing corporate goals and directing technological investments.

The increased membership within the expanded decision-making structure will be drawn from senior management of the company's operating units, including all IBM officers with the rank of senior vice-president or above.

Opel will chair the Policy Committee, joined by John Akers, recently elected president of IBM, and Paul J. Rizzo, vice-chairman of the board of directors.

Dean P. Phypers, senior vice-president, will chair the Business Operations Committee, joined by C. Michael Armstrong of the Information Systems and Communications Group; George B. Beitzel, senior vice-president; Kaspar Cassani of the IBM World Trade Corp.; Allen Krowe of finance and planning; Jack Kuehler of Information Systems; Jacques Maissonrouge, senior vice-president; Ralph Pfeiffer Jr. of IBM World Trade Americas; and C.B. Rogers Jr. of Information Systems.

Other members of the Corporate Management Board include Lewis Branscomb, chief scientist; Frank Cary, chairman of the executive committee of the board of directors; Ralph Gomory, director of research; and Nicholas deB. Katzenbach, general counsel.

Newly Formed Firm Plans Show To Exhibit Prime Compatibles

SAN RAFAEL, Calif. — To counter Prime, Inc.'s corporate dictum forbidding competitive vendors from exhibiting at Prime Users Group (PUG) conferences [CW, Feb. 28], a new company has been formed to manage exhibits of Prime-compatible software, hardware and services for PUG members.

Pricon, Inc.'s first exhibition, called Compatibles '83, is slated to take place on the same dates and in the same city as PUG's 1983 national conference — June 19-21 in San Francisco, according to a spokesman for Pricon.

The spokesman said that more than 60 vendors will be on hand; many of those exhibitors are veterans of former PUG exhibitions, now banned from attending by Prime's corporate policy.

The sponsor of Compatibles '83 expects strong support from PUG

members, who reportedly voted against the Prime decree in favor of allowing compatible vendors to exhibit in New Orleans last year, the spokesman said.

Mitch Modeleski, founder and president of the new company, is a former PUG member, speaker and coordinator. He is currently an independent consultant specializing in Prime equipment and he said that he formed Pricon to "fill the gap left by the cancellation of third-party vendor exhibits at the PUG conferences."

Prime declined to comment on Pricon's formation or its upcoming trade show plans.

Compatibles '83 will provide shuttle bus service and free admission to PUG members. Further details are available from Pricon, Inc. headquarters at 30 Roundtree Blvd., San Rafael, Calif. 94303.

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1. Very few programmers—male or female—have ever established a meaningful relationship with documentation. What they produce is seldom very good—and it's almost never updated.
2. The result is a generation that might be called "Orphan COBOL Programs." They may have fathers. And they may have mothers. But birth certificates they have not got!
3. The rub comes when you try to update these orphans to meet the demands of the brave new world of DP. You can try to deduce the logic of such orphans by referring to the source code. But that's a slow and dangerous business. And your name had better be Sherlock Holmes.
4. Or you can simply ask the author of the program about the underlying logic. But guess what? He or she has just left for an exciting new job in Tahiti.
5. What you're probably left with is hand-drawn hierarchical charts—a long bus ride from structured programming techniques. And if you try to insert new code without understanding the logic, watch out. You'll probably introduce so many bugs you'll never be free of the exterminator!
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Also Cuts 8630 Price by 33%

Datapoint Adds Mini With Interface to ARC

By Ed Scannell
CW Staff

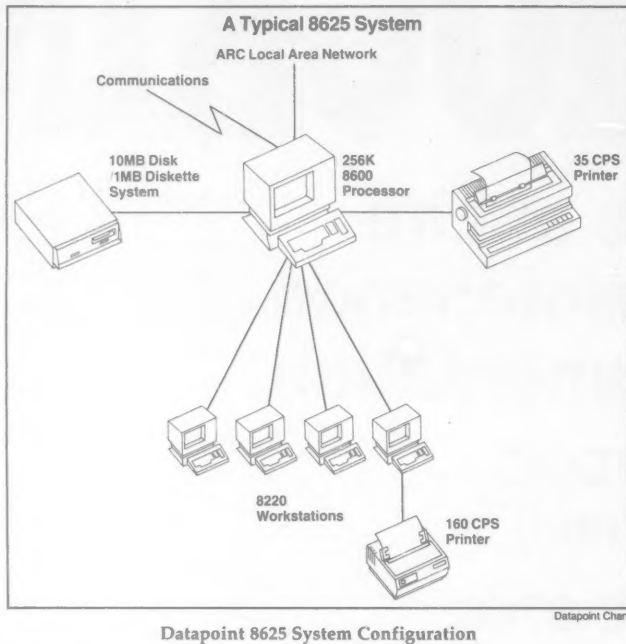
SAN ANTONIO, Texas — Datapoint Corp. today unwrapped the lowest priced member of its 8600 series of 16-bit minicomputers, featuring a 10M-byte hard disk and 1M-byte diskette storage device, as well as an interface to the company's Attached Resource Computer (ARC) local-area network.

Like previous versions, the Model 8625 is based on the firm's 8602 processor and is compatible with other systems in the firm's minicomputer line. The system is typically priced at \$14,950.

At the same time, Datapoint also announced a 33% reduction in the price of its larger 8630 system — from \$33,500 to \$22,500 — and an increase in the communications capabilities and disk support of its DOS operating system, running on systems in its entire 8600 line.

The Model 8625 has 128K bytes of memory that can be expanded to 256K bytes and a serial port that can accommodate a printer or terminal. By adding the extra 128K bytes of memory, users can incorporate an optional four-port terminal interface, a communications adapter for batch operations and a parallel bus adapter, a spokeswoman said.

The firm increased the 8600 series



DOS communications and disk support to allow users of its older equipment, running under the previous

version of the operating system, to take advantage of word processing, electronic mail and Microsoft, Inc.'s

Multiplan spreadsheet software packages. Until now, these packages were available only to 8600 users running under the firm's RMS operating system.

In addition, DOS users will now be able to run these programs without making any modifications to their existing software, a spokeswoman said. The DOS enhancements are also compatible with higher level languages such as Cobol, Fortran, Databus and Basicplus, she added.

Stand-Alone or Node

Both the 8625 and 8630, which feature a 20M-byte disk drive and a 20M-byte streaming tape unit, can be used as stand-alone business systems or as communications nodes supporting other terminals in the vendor's ARC local-area network, the spokeswoman said.

In their basic configuration, both systems can simultaneously support up to nine users. However, by adding extra communications adapters, both systems, running under DOS, can support up to 24 users at one time, the Datapoint spokeswoman claimed.

Additional information on the 8625 and other 860 series systems is available from the vendor at 9725 Datapoint Drive, San Antonio, Texas 78284.

End Users at Pepco Embrace Business Graphics

By Jim Bartimo
CW Staff

WASHINGTON D.C. — One of the reasons the Potomac Electric Power Co. (Pepco) has such a wide base of business graphics users is "we never put an air of mystery around graphics, and we didn't push it down their throats, either," according to Kenneth Lint, Pepco senior project analyst.

This electric power utility serving Washington, D.C., and parts of Virginia and Maryland has 532,000 users and operating revenues of \$1,095,153. It employs 5,000 people — 100 of which produce their own business graphics to the tune of 50 jobs per day. The users range in profession from engineer to secretary and in application from flip charts to word slides.

The graphics boom came slowly but surely to Pepco. When the data processing department put Issco Graphics, Inc.'s Tell-A-Graf on line to users in 1979, only about five graphs were being produced per week. But once users found they could produce quality graphics on their own terminals, more and more started to use them. "You can use any Ascii start/stop terminal to produce graphics using Tell-A-Graf," according to Paul O. Barnhill, manager of technical services and operations for Pepco.

Number of Devices

While input takes place from any terminal, Pepco has a number of output devices — including three Hewlett-Packard Co. 7221 flat-bed, eight-plotter and two California

Computer Products, Inc. 1051 four-plotter drum plotters. Special graphics input terminals include two HP 2648As, an HP 2623 and an HP 2627 on order. "We went with Hewlett-Packard because we have a long experience with them, because they're a big name in graphics and because the hardware runs with our three IBM 158s and our IBM 3031," Lint said.

A chargeback system to users is based on use of computer time — not per graph, Barnhill pointed out.

Like many other graphics users, Pepco sends its slides out to a service bureau for processing once preparation is completed in-house. But for peer graphics that do need not to be as attractive, an HP microcomputer is often used.

Who Sees Graphics?

Who sees the charts, graphs and word slides produced by Pepco? "We use them to show output of electricity per hour to senior management, for instance," Barnhill said. Slides are often used in making presentations to public service commissions that decide if Pepco can raise or lower its rates.

The data processing department itself may use graphics for its presentations. There was a problem with computer response time on Mondays only, Barnhill said. To prove to management that the problem was due to increased volume of work early in the week, the department prepared a chart comparing Monday's work load to work loads later in the week. "It's very easy to depict what is going well and show what the real issues

are without getting into a lot of superfluous numbers," Barnhill said.

Other Pepco departments that use the graphics systems are the financial department, rate and energy planning departments and the engineering department. Because Tell-A-Graf runs on the corporate mainframe, virtually any data can be called up and put into a graph without rekey-

ing, Barnhill said.

Users go through a growing process with graphics once they have discovered them, Flint said. "Sometimes people draw graphs that you don't really know what they mean — it's common to put too much on a graph at first. But with experience, users get some pretty nice output," he said.

Radio Shack Offers Portable Micro Billed as Executive Workstation

FORT WORTH, Texas — Radio Shack has unveiled a Japanese-made, four-pound portable computer that contains built-in software, built-in modem and a full-size typewriter keyboard with eight programmable function keys.

Made by Kyocera of Japan, the \$799 Model 100 is being billed as a micro executive workstation that can serve as a word processor and general-purpose Ascii terminal. And with appointment calendar, phone directory, address book and autodialer functions, the unit doubles as a desk organizer, according to a spokesman for the company.

Programmable in Microsoft, Inc.'s Extended Basic, the Model 100 is based on Intel Corp.'s 8085 processor, has 8K bytes of random-access memory (RAM), 32K bytes of read-only-memory (ROM) containing five programs, 300 bit/sec modem, an eight-line by 40-char. LCD and an RS-232 interface. A 24K-byte RAM version is also available for \$999, the spokesman said.

The optional 8K-byte RAM additions, for up to 32K bytes of RAM, are available for \$119.95 plus \$15 for installation. Other accessories include a printer cable and a direct-connect modem cable that permits the machine's modem to connect to a telephone.

The five built-in programs contained in the notebook-size computer include Text, which allows users to create and edit text files; Schedl, which allows users to locate and display dates, times and appointments; Address, an address organizer; Telcom, a communications control program that permits automatic telephone dialing at speeds of 10 and 20 pulse/sec in either half- or full-duplex modes; an automatic logon feature that permits access to other computers and information services; and Basic.

The system is expected to be available late in this year's second quarter, the vendor said from 1800 One Tandy Center, Fort Worth, Texas 76102.

In this business a company lives to enjoy old age by keeping one principle alive. Staying new.

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April 18-22 Chicago
May 23-27 Boston
June 13-17 San Francisco
DATABASE ADMINISTRATORS
WORKSHOP (5 Days)
April 25-29 New York
May 16-20 London

INTERNAL CONTROLS & DATA SECURITY WORKSHOP (3 Days)

May 23-25 New York
AUDITING STRUCTURED
ANALYSIS & DESIGN
WORKSHOP (5 Days)
June 6-10 New York

STRUCTURED PROGRAMMING WORKSHOP IN PASCAL (5 Days)

May 9-13 Anaheim

INTRODUCTION TO THE TOOLS OF STRUCTURED ANALYSIS (2 Days)

May 10-11 New York

STRUCTURED ANALYSIS & SYSTEM SPECIFICATION WORKSHOP (5 Days)

April 4-8 Boston
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April 11-15 Columbus
April 11-15 New York
April 11-15 Salt Lake City
April 18-22 London
April 18-22 Chicago
April 25-29 Houston
May 2-6 Calgary
May 2-6 Ottawa
May 9-13 Denver
May 9-13 Oklahoma City
May 16-20 Amsterdam
May 16-20 Washington, DC
May 16-20 San Francisco
May 23-27 Milwaukee
May 23-27 Birmingham,
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June 6-10 Atlanta
June 6-10 Regina
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June 13-17 Copenhagen
June 13-17 London
June 13-17 Portland
June 20-24 Los Angeles
June 20-24 Miami
June 20-24 New York

STRUCTURED ANALYSIS FOR REAL TIME SYSTEMS (5 Days)

April 11-15 Minneapolis
May 9-13 Boston
June 6-10 Long Beach
STRUCTURED ANALYSIS FOR
USERS (3 Days)

April 12-14 Washington, DC
April 18-20 Miami
April 25-27 Toronto

May 2-4 Anaheim
May 9-11 Atlanta
May 9-11 New York
May 16-18 Ottawa

June 6-8 London
June 13-15 Chicago
June 13-15 Dallas

June 20-22 Boston

ADVANCED STRUCTURED ANALYSIS (5 Days)

April 4-8 Ottawa
April 11-15 Amsterdam
April 11-15 New York

April 18-22 Anaheim
May 2-6 Houston

May 9-13 Washington, DC
May 9-13 Salt Lake City

May 16-20 London
June 6-10 Boston

June 13-17 Chicago
June 13-17 San Francisco

June 20-24 Toronto

INTRODUCTION TO THE TOOLS OF STRUCTURED DESIGN (2 Days)

June 6-7 New York

STRUCTURED DESIGN WORKSHOP (5 Days)

April 4-8 Phoenix
April 11-15 New York
April 18-22 Los Angeles

April 25-29 Copenhagen
April 25-29 London

May 2-6 Chicago
May 2-6 Toronto

May 9-13 Atlanta
May 9-13 Seattle

May 16-20 Boston
May 16-20 Edmonton

June 6-10 Washington, DC
June 6-10 Winnipeg

June 13-17 Cleveland
June 13-17 San Francisco

June 13-17 Salt Lake City
June 20-24 London

June 20-24 New York

STRUCTURED QUALITY ASSESSMENT WORKSHOP (2 Days)

April 27-28 New York
May 16-17 Washington, DC
June 6-7 San Francisco

June 9-10 London

STRUCTURED PROGRAMMING WORKSHOP IN COBOL (5 Days)

April 4-8 Chicago
April 18-22 Boston
May 23-27 San Francisco

June 13-17 New York

SYSTEMATIC SOFTWARE TESTING (2 Days)

April 18-19 New York

April 25-26 Los Angeles
May 9-10 Chicago

May 16-17 Houston
June 13-14 San Francisco

June 20-21 Boston

INFORMATION MODELING WORKSHOP (5 Days)

April 11-15 Toronto
April 18-22 New York

April 25-29 Ottawa
May 2-6 Atlanta

May 16-20 Boston
May 16-20 San Francisco

May 23-27 London
June 13-17 Anaheim

June 13-17 Washington, DC
June 20-24 Chicago

June 20-24 Houston

MANAGING PROJECTS IN THE STRUCTURED ENVIRONMENT (2 Days)

April 4-5 Washington

April 18-19 Boston
May 9-10 San Francisco

May 16-17 New York
June 6-7 Atlanta

June 13-14 Houston
June 20-21 Anaheim

PROJECT PLANNING & CONTROL WORKSHOP (5 Days)

April 11-15 New York
April 18-22 Chicago

May 9-13 Boston
June 6-10 Phoenix

June 13-17 Houston
June 20-24 San Francisco

STRATEGIES FOR SOFTWARE DEVELOPMENT (3 Days)

April 18-20 London
May 11-13 San Francisco

MANAGING THE MAINTENANCE EFFORT (2 Days)

April 4-5 New York

April 28-29 London
May 11-12 Chicago

May 16-17 Toronto
June 6-7 Anaheim

June 13-14 Boston

PROJECT & TEAM MANAGEMENT WORKSHOP (3 Days)

April 18-20 New York

April 25-27 London
April 25-27 San Francisco

May 2-4 Toronto
May 9-11 Anaheim

May 16-18 Washington, DC
June 6-8 Chicago

June 13-15 Houston
June 20-22 Boston

FINANCIAL MODELING—A STRUCTURED APPROACH (5 Days)

April 11-15 Washington, DC

May 16-20 New York
June 20-24 Cleveland

STRUCTURED DESIGN & PROGRAMMING WORKSHOP FOR MICROPROCESSORS (5 Days)

April 4-8 Boston

May 16-20 San Jose
June 13-17 Anaheim

MG. IMPLICATIONS OF STRUCTURED TECHNIQUES FOR MICROPROCESSORS (2 Days)

April 4-5 Anaheim

ADA SOFTWARE ENGINEERING WORKSHOP (5 Days)

April 4-8 San Jose

April 11-15 Washington, DC

June 20-24 San Jose
June 27-01 Washington, DC

STRUCTURED ANALYSIS & SYSTEM SPECIFICATION WORKSHOP FOR MICROPROCESSORS (5 Days)

May 2-6 Anaheim

June 6-10 Boston

STRUCTURED SYSTEMS DEVELOPMENT (1 Day)

April 11 Atlanta
April 22 Washington

May 16 Boston
May 23 Kansas City, MO.

June 13 Toronto
June 20 New York

STRUCTURED DESIGN & PROGRAMMING WORKSHOP (5 Days)

April 4-8 Chicago

April 18-22 Amsterdam
April 18-22 New York

May 9-13 London
May 16-20 San Francisco

May 23-27 Boston
June 6-10 Washington, DC

June 13-17 Denver
June 13-17 Toronto

STRUCTURED PROGRAMMING WORKSHOP (5 Days)

April 4-8 Houston

April 18-22 Toronto
May 2-6 San Francisco

May 23-27 Boston
June 6-10 New York

June 20-24 Anaheim

STRUCTURED PROGRAMMING IN COBOL (2 Days)

April 13-14 Washington, DC

June 20-21 San Francisco

STRUCTURED ANALYSIS & DESIGN WORKSHOP (5 Days)

April 4-8 New York

April 4-8 Minneapolis

April 11-15 Calgary
April 18-22 Ottawa

April 25-29 Denver
April 25-29 Washington, DC

May 2-6 Boston
May 2-6 Atlanta

May 9-13 Chicago
May 9-13 Toronto

May 16-20 Copenhagen
May 16-20 London

May 23-27 San Antonio
May 23-27 San Francisco

June 6-10 Houston
June 13-17 Indianapolis

June 20-24 New York
June 20-24 Portland

June 20-24 Regina
June 27-01 Anaheim

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New Export Control Plan Pleases Commerce

By Jake Kirchner

CW Washington Bureau

WASHINGTON, D.C. — Proposals by the Reagan administration to revamp U.S. export controls — scheduled for unveiling this week — will ease restraints on U.S. firms and strengthen barriers that prevent the Soviets from acquiring militarily useful technologies, according to a high-ranking Commerce Department official.

The long-standing interagency feud over methods to balance competing goals of increasing exports while protecting national security

has finally been resolved, said Commerce Under Secretary Lionel H. Olmer, who reiterated the administration's resolve to foster American high-technology industries.

Olmer, head of the department's International Trade Administration, said in a speech here last week that the often delayed proposals recognize "the need for realism about how much we can control and the necessity for cooperation with our allies." Current export control practices have been criticized as ineffective by U.S. firms, particularly in the electronics industry, because they are not

matched by other Western nations that are allegedly exporting more readily to the Soviet bloc and, free of burdensome control procedures, are more reliable suppliers to friendly nations.

Reacting to these and related criticisms, Commerce is giving increased priority to determining foreign availability of restricted products and technology as one basis for streamlining controls, according to Olmer.

While declining to offer specifics of the Reagan proposal, Olmer did say Commerce is adopting a private-sector suggestion for relaxed exports between U.S. firms and their overseas subsidiaries.

Computer and electronics industry representatives recently urged Congress to adopt this so-called "comprehensive operations license," which would, in effect, validate an individual firm's own security methods and allow a one-time licensing of intrafirm product and technology transfers.

This would relieve companies of burdensome license approval procedures for each similar transaction [CW, March 14]. A proposal for this licensing procedure will be ready for

public comment within two months, according to Olmer.

In general, Olmer said, the administration is committed to a three-part export control approach. First, he said, the government will work harder to determine militarily critical technologies. Industry is now being consulted in the paring of the currently unworkable list of such technologies, which now includes more than 100,000 items.

"The concept we are now promoting in the new list emphasizes control of the know-how essential to manufacturing militarily critical items and of a limited set of commodities which are keystones to the manufacturing process," Olmer explained.

Second, he said, "we must convince our allies to close ranks in enforcing controls." The administration is now negotiating a new set of control mechanisms with its allies, and Olmer promised greater effort to reach, as they become necessary, control agreements with countries now outside existing arrangements.

"We must strive to maintain our preeminence in technology so as to provide leverage behind our controls," he said.

Lag Blamed on Trade Laws

WASHINGTON, D.C. — Arguments that U.S. industries are lagging in high technology due to inadequate investment, wages and benefits that rise faster than productivity are "nonsense," Commerce Under Secretary Lionel H. Olmer said. Also untrue are claims that U.S. firms are losing their technological edge because of "poor quality, indifferent management, too many money managers and lawyers and too few engineers," he said.

"As long as foreign governments assemble advantages for their industries while raising obstacles to market access by ours, as long as the American marketplace remains fair game for the industrial policies of others, our companies may not be ca-

pable of prevailing," according to Olmer.

In fact, the U.S. is reviewing trade laws to simplify them and make them more responsive to the needs of small businesses and the need to respond to industrial targeting practices abroad.

"We cannot solve our high-technology problems alone. We need consensus among our allies to guarantee that the fruits of our progress will not be diverted to be used against us," Olmer said.

"And we need the cooperation of our trading partners to assure open markets and a fair trading system for our products. These two efforts should support each other," Olmer concluded.

CDLA Primed to Battle IRS

(Continued from Page 1)

transactions by increasing financing costs ... There are few winners in this kind of a regulation."

A spokesman for the IRS said that the CDLA's claim is "partially accurate," in that the IRS is, in fact, considering writing new regulations that could affect the way depreciation deductions are apportioned in sale-leaseback transactions. According to the spokesman, the IRS "is not really mulling any changes, rather we're writing the rules for the first time."

The IRS was directed by Congress last summer to tighten up some of the more liberal tax breaks given business by the 1981 Economic Recovery Tax Act. One target of Congress in issuing the Tax Equity and Fairness Reform Act is the buying and selling of tax credits and deductions, such as those the CDLA is trying now to protect.

George McCannless, who is president of Computer Equipment Investors, Inc. and chairman of CDLA's legislative committee, said the impact of regulations the IRS is apparently considering would be "very significant" for many users of leased equipment.

The immediate effect, he said, would be a "total disruption of the way lease business has been done for years." This disruption will mean that users will pay "considerably more" for equipment leases in sale-leaseback transactions, which McCannless said users have come to rely on in order to reduce operating costs.

McCannless also argued that the reported changes in tax regulations would prove hopelessly cumbersome for the IRS to enforce because "the overwhelming majority of lease deals involve three or more equipment owners in a year."

Shorter Depreciation Also Sought

By Bill Laberis
CW Staff

In addition to being unhappy with what it claims are unfair and costly tax regulations that the Internal Revenue Service is considering, the Computer Dealers and Lessors Association (CDLA) said that its membership and the user community have been penalized by recent changes in the tax code as it pertains to accelerated cost recovery of capital equipment.

The CDLA and several individual members are pressing for changes in federal tax statutes to allow users to depreciate the cost of computer equipment over a three-year period, instead of the five-year time frame that is currently allowed. The rapid pace of technological change in the

computer industry has accelerated equipment obsolescence, thus creating the need for more accelerated depreciation, a CDLA spokesman said.

In a letter to the IRS, James Benton, CDLA executive director, said the five-year depreciation now allowed for computer equipment "has stifled the use of advanced computer systems."

In the landmark Economic Recovery Tax Act of 1981, Congress approved sweeping changes in depreciation regulations designed to allow businesses to depreciate the cost of capital equipment over shorter periods of time. The depreciation period for aircraft, formerly 12 years, was shortened to five years, the same depreciation period allowed for computer equipment.

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First User of MSA Package Casino Wins With Micro-to-Mainframe Link

By Lois Paul
CW Staff

ATLANTIC CITY, N.J. — Deciding not to gamble with the integrity of its centralized data base, Caesars Boardwalk Regency here became the first user of a product designed to provide a controlled link between its mainframe data base and software running on microcomputers.

Larry Bertsch, the firm's vice-president and treasurer, had been concerned that the whole concept of a data base was in jeopardy because of the clamor for personal computers among the firm's end users.

Concerned that end users who buy their own microcomputers do not properly document their programs and sometimes even leave the company, taking all knowledge of the system they developed with them, Bertsch had established a rule at Caesars that no one could have a microcomputer.

However, when end users complained about not getting prompt service from DP, he began searching for a system whereby users could have personal computers, but still rely primarily on the mainframe data base.

A Beta Test Site

In December 1982, Bertsch's firm became a beta test site for Management Science America, Inc.'s (MSA) micro/mainframe product offering, a system that is intended to allow a manager to download a portion of the corporate data base from the mainframe to the micro for management analysis and other desktop applications.

The software links microcomputers operating with packages from MSA's subsidiary, Peachtree Software, to mainframe data developed by MSA's financial, human resource and manufacturing systems.

"It seemed to give us this opportunity to have a personal computer for everybody and still have the data base on the mainframe," Bertsch said.

Caesars is using a hardware/software implementation of the system. The hardware component is a protocol converter that was developed by Renex Corp. and is supplied by MSA. This is attached to an IBM mainframe control unit.

Using modems attached to their Zenith Data Systems Corp. Z100 microcomputers, end users at Caesars dial in via telephone lines to the central computer, an IBM 4341 running DOS/VSE.

Caesars also has an IBM 4331 that serves as a test machine and a backup since the casino system must run 24 hours a day, according to Bertsch.

The software component of the system is a variety of packages from Peachtree called Executive Peachpak. Peachlink is the software component that allows the downloading of data from the mainframe to the microcomputer.

In addition, Caesars is using Business Graphics, an electronic spreadsheet package called Peachcalc, a word processing component called Peachtext and Telecommunications, which is linking its users to the Dow

Jones news retrieval service, according to Bertsch.

Caesars has long been a customer of MSA's mainframe software products and currently is running its packages for accounts payable, general ledger, payroll/personnel, fixed assets, financial forecasting and purchasing and inventory control.

Need for Special Reports

"We got micro/mainframe not necessarily because of problems we were having, but because we needed a lot of special analyses and reports," Bertsch explained.

After his group straightened out some initial problems with the pro-

tol converter, his users were quickly trained on the use of the system and were successfully downloading the MSA data base they needed to produce the special reports, Bertsch said.

Users cannot establish their own data bases on the microcomputers, according to Bertsch. They must rely on the mainframe data base to gain the information for reports that they can print out, sometimes using a plotter for graphics.

The biggest use for the product to date is for "what if" analysis of data and quick, one-time reports that can aid decision makers, according to Bertsch.

"In my computer room, enhancements to big systems make up a year's backlog. If users had to get this information via DP, the existing backlog would never go down," Bertsch explained.

Micro/mainframe is the first step toward an information center for Caesars, according to the firm's vice-president and treasurer. The firm still is analyzing what form the information center should take and what products it should include, Bertsch said.

"I always had it in the back of my mind, but I did not have the key. But micro/mainframe may put us over the edge," Bertsch said.

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SAMPLE OF FATS REPORT

FAST ANALYSIS OF TAPE SURFACES DETAIL REPORT -- FATS VER 4.0 Z										INNOVATION DATA PROCESSING DATE 1	
MESSAGE	ID	UCB	LABEL	OPTION	PASS	FILE NO	RECORDS	LOCATION	LENGTH	RETRIES	ACTION
FATS204	TAPE2	281	987654				1007 FT	8 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1007 FT	8 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1008 FT	13 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1008 FT	17 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1008 FT	21 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1009 FT	26 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1009 FT	30 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1009 FT	34 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1010 FT	39 IN	10	10	PERM DATA CHECK
FATS204	TAPE2	281	987654				1010 FT	43 IN	10	10	PERM DATA CHECK

The length of these bad spots would cause unrecoverable data checks and I/O errors during processing.

FAST ANALYSIS OF TAPE SURFACES DETAIL REPORT -- FATS VER 4.0 Z										INNOVATION DATA PROCESSING DATE 1	
MESSAGE	ID	UCB	LABEL	OPTION	PASS	FILE NO	RECORDS	LOCATION	LENGTH	RETRIES	ACTION
FATS107	TAPE1	280	123456				1 FT	1 FT	01	01	LABEL WRITTEN
FATS204	TAPE1	280	123456				1 FT	1 FT	01	01	TEMP DATA CHECK
FATS204	TAPE1	280	123456				1 FT	1 FT	01	01	TEMP DATA CHECK
FATS204	TAPE1	280	123456				1 FT	1 FT	01	01	PERM DATA CHECK
FATS204	TAPE1	280	123456				2375 FT	4 IN	10	10	PERM DATA CHECK
FATS204	TAPE1	280	123456				2375 FT	8 IN	10	10	PERM DATA CHECK
FATS204	TAPE1	280	123456				2375 FT	13 IN	10	10	PERM DATA CHECK
FATS204	TAPE1	280	123456				2375 FT	13 IN	10	10	PERM DATA CHECK

This 13 inch ERROR is located at the end of the reel; by moving the tape's reflector strip back 3 feet this tape becomes a good tape.



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Competitors Still Objecting to AT&T Plan

By Phil Hirsch

CW Washington Bureau

WASHINGTON, D.C. — Although the Justice Department has given its seal of approval to AT&T's proposed reorganization, Bell's com-

petitors are still voicing strong objections.

One part of the AT&T reorganization plan widely criticized by AT&T's competitors involves the makeup and mission of a central staff

organization to be owned by the divested Bell operating companies.

It will be a "single point of contact" between them and federal military and civil emergency agencies. The new organization also will provide a multitude of engineering/marketing support services to the operating companies after divestiture, consolidating and thus presumably reducing the cost of activities each operating company otherwise would have to operate on its own.

Technical evaluation of terminal equipment and other products is one of these activities. Since the antitrust settlement agreement AT&T negotiated with the Justice Department last year bars the operating companies from making their own equipment, they will almost certainly buy a great deal from communications equip-

ment manufacturers.

The critics, which included the Federal Communications Commission in this case, charged that the central staff organization might favor Western Electric over non-Bell suppliers because 75% of its personnel will come from the phone company.

"We are satisfied these concerns are unwarranted," said the Justice Department. "The [operating companies] will own and exercise control over the [central staff organization], not the reverse." Pointing out that the settlement requires the operating companies not to favor AT&T, Justice said it would "continue to examine the [central staff organization] to ensure that the nondiscrimination provisions are not violated." The department also cited a public statement by AT&T that the central staff organization will perform a "scientific and objective testing function to determine whether equipment meets generic requirements ... [central staff organization] officials have assured the department that [they] will not label products 'acceptable' or 'suitable'."

Critics also had insisted the reorganization plan would enable AT&T to monopolize switched and non-switched private-line services. They cited provisions enabling the phone company to establish service interfaces close to the customer's premises. According to their argument, ownership of these "points of presence" would enable Bell to give users of Western Electric-supplied terminals quicker and better service than users of other terminal makers.

Regarding switched private-line services, "there may be an incentive," the Justice Department said, "for AT&T to attempt to locate its points of presence as near the customer as possible." However, "it would be difficult or impossible to establish guidelines for the allocation of these assets that ... could achieve more reasonable results ... We will continue to monitor this process."

Regarding Dataphone Digital Service (DDS), the main nonswitched service cited by those who objected to the location of AT&T's points of presence, Justice said that "the Department's preliminary view is that the rules ... are reasonable ... Ownership of some [DDS] hubs by AT&T will not impair the [operating companies'] ability to provide exchange access through the hubs, including the testing and timing of DDS circuits of other interexchange carriers."

Justice Endorses AT&T Plan

(Continued from Page 1)

assignments can be made.

• AT&T will establish a central employee organization to provide a single point of contact for dealing with national security and civil defense agencies of the federal government; the organization will be transferred to the seven regional holding companies prior to divestiture. Staffed largely with personnel transferred from AT&T's ranks, the organization will also provide the operat-

ing companies with a number of technical and marketing support functions.

One of last week's changes to the plan will allow the divested operating companies to sublicense Bell patents to their suppliers without getting AT&T's prior approval, as the original plan required. In addition, the operating companies rather than AT&T will control assignment of 800 numbers and will own noncoin Charge-A-Call telephones.

AT&T Continues to Press FCC

Detariff of Embedded Base Poses Puzzle

By Phil Hirsch

CW Washington Bureau

WASHINGTON, D.C. — AT&T's plan to sell in-place terminal equipment used by its business customers (story on Page 1) is the latest development in a process that began two years ago. At that time, the Federal Communications Commission (FCC), in its Second Computer Inquiry Decision, ruled that if the phone company wanted to continue selling such equipment, it would have to do so through a separate, deregulated subsidiary.

The first step in this process was taken last January, when American Bell, Inc., the phone company's separate, deregulated subsidiary, began marketing new terminal equipment and the Bell operating companies retired from the scene. But because the commission has not yet decided how it wants to deregulate the already-in-

Analysis

stalled equipment base, the Bell operating companies continue to rent and service embedded customer premise equipment.

This creates a problem, according to the phone company. Under the terms of the antitrust consent decree negotiated with the Justice Department last year, AT&T will take over the embedded customer premise equipment base from the Bell operating companies on the date of divestiture, which is currently set at Jan. 1.

But unless this equipment is deregulated before then, the inventory will not be transferable to American Bell, since it can offer only deregulated services and products.

As a result, AT&T maintains it would have to establish a new entity,

dealing only with the embedded equipment base, and this would lead to confusion as well as to extra costs for users. To forestall this alleged problem, the company has been pressing the FCC for some time to decide how the embedded base should be detariffed.

Not everyone wants the commission to act quickly, however.

Last January, House Commerce Committee Chairman John Dingell (D-Mich.) and three members of its telecommunications subcommittee said in a letter to FCC Chairman Mark Fowler, "AT&T's proposal amounts to a 'flash cut' deregulation of the installed base that could have serious adverse effects on ratepayers ... [It] would not permit sufficient time for the development of alternative sources of equipment."

"Moreover, flash cut deregulation would allow AT&T to capitalize on its dominance of the installed terminal market and to migrate current Bell customers to newer Bell equipment — a strategy which several state public utility commissions have already recognized and opposed."

Industry critics have suggested that AT&T's claims of added confusion and cost are hollow in view of the fact that under the phone company's corporate reorganization plan, each of the to-be-divested Bell operating companies, prior to divestiture, will set up a separate subsidiary to handle the sale and maintenance of in-place terminal equipment. Upon divestiture, these organizations will be transferred to AT&T.

AT&T Seeks Hike in Access Fees

WASHINGTON, D.C. — AT&T, on behalf of its local operating companies, last week requested Federal Communications Commission (FCC) permission to charge other common carriers an estimated \$30 million to \$35 million more for local-exchange access service.

If the FCC grants AT&T's request, at least part of this increase probably will be passed on by the other common carriers to their customers.

The local-access circuits covered by the proposed rates are officially

known as Exchange Network Facilities for Interstate Access (Enfia), and the other common carriers pay for them on the basis of usage. AT&T wants to raise the rates because it says usage has increased from a monthly average of 4,474 minutes per line — the basis of the present rates — to 5,236 minutes per line.

The tariff is supposed to become effective April 16, but opposition from the other common carriers is virtually certain. As a result, the effective date is likely to be deferred.

Corrections

Users of Mead Data Central, Inc.'s on-line Nexis service can access *Computerworld* stories beginning with the Dec. 28, 1981-Jan. 4, 1982 "Forecast" issue, not the Dec. 27, 1982-Jan. 2, 1983 issue [CW, March 28].

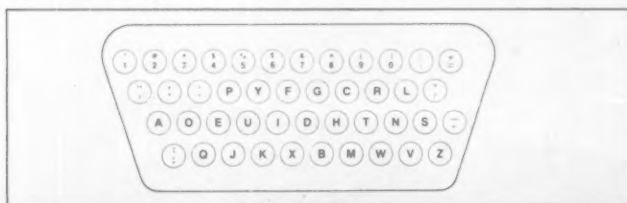
In "So Far, 18 State Computer Crime Laws" [CW, March 28], Alaska was mistakenly identified as a state that has a specific computer crime law, making the list of 18 one state too long. Alaska's law is not, in *Computerworld's* opinion, specific enough to be included in this list.

The Bell Laboratories illustration of the Dvorak keyboard [CW, March 9], which does not include an "X" key, does not represent the X4.22

keyboard standard adopted by the American National Standards Institute. The X4.22 standard is illustrated below.

In "Broadband Optic System Bows" [CW, Feb. 21], it was incorrectly reported that the Wavelink Model 3291 fiber-optic transmitter and receiver communications system costs \$11,000. The system actually costs \$1,100 from The Grass Valley Group, Inc., P.O. Box 1114, Grass Valley, Calif. 95945.

Norman R. Carlson, coauthor of the In Depth article "A Guide to Patenting Software" [CW, March 7], is affiliated with Skriptek, Inc. of Houston, not Techstar Publications.



Dvorak Keyboard

FAA Plans to Reprogram ATC Software for Safety

By Marguerite Zientara
CW Staff

WASHINGTON, D.C. — The Federal Aviation Administration (FAA) has announced plans to reprogram its air traffic control (ATC) software in an effort to strengthen its aircraft separation procedures.

The plan is part of a three-pronged effort toward improving ATC quality assurance, increasing data on ATC irregularities and enhancing controller professionalism.

The FAA will begin developing all three steps this spring, with full national implementation in the 20 air route traffic control centers (ARTCC) scheduled for early 1984.

One part of the FAA's plan calls for the agency to use its ATC computers to help identify operational errors, defined as "any failure of personnel, equipment or procedures" resulting in less than the required separation between controlled aircraft. Separation criteria are five miles in en route airspace and three miles in airport terminal areas.

The FAA said further study is needed before the tower and radar room computer equipment — which has less capacity and is less sophisticated than that in the ARTCCs — can be modified to encompass that plan. In those locations, the plan is expected to be fully operational by early 1985.

Second Portion

The second portion of the FAA plan will adopt a new classification system for operational errors that "more clearly describes both their magnitude and cause," according to an FAA spokesman.

The third plan of action will permit "more careful monitoring" of air traffic controllers to discover "very early indications of performance deficiencies... before they can develop into bad habits that could create control problems," according to the spokesman.

Currently, reports of operational errors are filed by controllers, their supervisors or pilots. There has long been controversy about whether

such incidents are always and accurately reported, especially since President Reagan's August 1981 firing of 11,400 striking controllers.

The planned program will generate a printout of potential operational errors, but manual verification will still be required because the software cannot determine whether both aircraft are operating under instrument flight rules, whether they are involved in a military mission and providing their own separation or whether the aircraft are in an area where reduced separation is permitted.

The system will require development of specific procedures to spell out how and by whom verification is determined.

Classification System

The establishment of a classification system for operational errors reflects the need to improve identification of developing system problems and undesirable trends. Current reports on individual incidents contain much of the necessary information, but not in a form that can be easily used for overall system analysis.

With the planned system, the classification assigned each operational error will indicate the minimum separation between the aircraft involved, the underlying causal factor, the recognition of a potential error by the controller and his reaction to the problem.

The performance of the controller work force is presently monitored through such methods as over-the-shoulder checks, special evaluations, in-flight monitoring and playbacks of audio and computer tapes. The FAA regards such methods as "sufficient to spot major problems and allow for corrective action," the spokesman said.

However, the FAA feels the need for evaluations earlier in the careers of controllers, particularly the thousands hired since the 1981 strike. This quality-control program would apply to both controllers and supervisors who engage in active control work.

Senate Rejects NBS Budget Cut

(Continued from Page 1)

March 28]. Under the Reagan proposal, ICST would concentrate on several specific areas of computer science research, on local-area network standards and on adopting privately developed standards to federal practices where appropriate.

That proposal has been harshly criticized by various government, private-sector and scientific community representatives as unrealistic and potentially harmful to federal, state and nongovernment DP users. The Senate committee agreed with those arguments in deciding to restore complete funding to ICST.

According to a staff member, the committee restored the \$7 million because "it should never have been taken out."

ICST, she said, "performs a service that can't really be assumed by the private sector."

The aide said the committee felt

that given the explosion of computer technology "this is not an appropriate time to be backing down in computer science research and standards."

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COSTA MESA, Calif. — "Measuring Success" will be the theme of Genesys Software Systems, Inc.'s Spring Users Conference, slated to take place here April 26-28.

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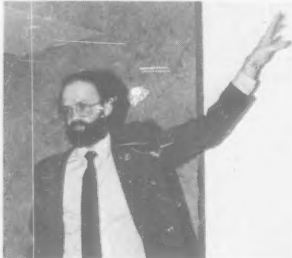
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OS-2

User Activity at all Planning Stages Seen Key

By Paul Gillin
CW Staff

BOSTON — Effective information systems planning should involve users at each level and in well-defined capacities, according to a management consultant here.



CW Photo by P. Gillin

Jeffrey Egglestone

Business First, Features Last

BOSTON — Many DP managers are selecting application packages on the basis of glitter rather than fabric, according to Jeffrey Egglestone, president of Information Methods Corp.

Speaking at a seminar here recently, Egglestone proposed that DP managers are too often pressured into selecting applications based upon user criteria rather than evaluating the software within the context of the business. "If a manager sees a way to get out that report he's been trying to get, he's likely to make a choice based on that factor alone," he said. "Features are usually looked at first, but they should be at the bottom of the list."

Selecting an application intelligently requires a more complete understanding of what the business is trying to accomplish, he said. "Look at what the package is supposed to do," not just what it can do, he said. "Look at the [business] statement of need, the information groups, business processes, markets, products and services."

Next, identify the data-related inadequacies of the application package in question, he advised. A package that is inadequate for the existing data model need not be scrapped, he said. "That may be a strength because it will point you to new business strategies, possibly even changing your data model. If you decide against the package at this time, don't despair," he added. "Maybe you can use the analysis to enhance the data model, anyway."

If you decide to continue the evaluation, he advised, select logical procedure models for the business as a whole and make sure they are consistent with the requirements of the application package. "You need a data model that's compatible with the application itself," he said.

Lastly, the consultant advised, look at the features the package offers, such as low cost, fancy graphics, portability and experience of the in-house programming staff. But keep these factors in perspective. "You can't win if you go at it [from that end] of the list," he said.

Speaking at a recent information engineering seminar, Jeffrey Egglestone, president of Information Methods Corp., said DP project administration should involve detailed planning and documentation of each stage of the project and ample communication with users to ensure that goals are being met.

A project plan should consist of statements of purpose for each component phase and stage, he advised.

Procedures should be well defined at each step, provide specific direction on basic questions and define evaluation criteria.

Skills and responsibilities need to be clearly defined for each major player, Egglestone commented:

- Senior management should be

involved to provide information on strategic directions, provide support and defense against attack and offer access to key resources. "Involve senior management carefully," he advised. "Introduce new techniques slowly and explain them."

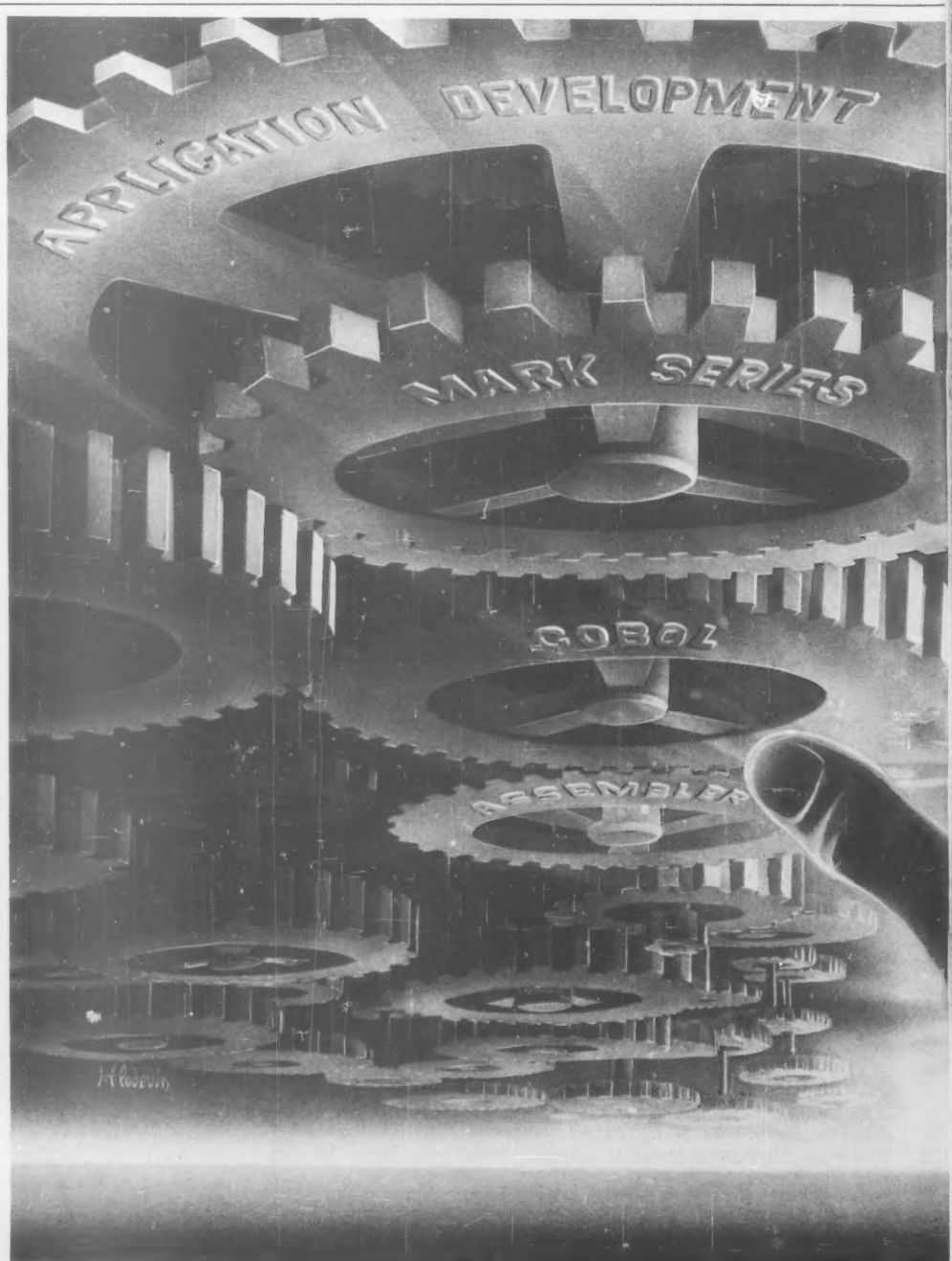
- Functional area management should be consulted frequently to interpret objectives and provide business information, Egglestone said. "Get them involved. Lead them to realize that they will be shirking their responsibilities if they don't make important decisions," he offered. "Explain concepts to them. If you just tell them, you'll get an argument."

- The project manager is a key player, Egglestone stated. He should possess initiative, business knowl-

edge, access to all levels of management, good coordination skills and project management experience. "And this project is not the one to get this experience on," he stressed.

- The DP representative to management should provide analytical skills and access to details of current computer systems. "Use the project as a method to break down the barriers between management and DP," Egglestone advised.

- The project secretary "should not be the same as the project coordinator," he cautioned. This person coordinates documentation, organizes the data dictionary, records all meetings and monitors progress. "This is a helluva lot of work," the consultant said. "If it slips, the project will fail."



Fourth Generation Offers Hope Outdated Methodologies Seen Crushing DP

By Paul Gillin
CW Staff

BOSTON — DP is being crushed by the weight of outdated methodologies and a fragmented data structure resulting from years of unrelated development.

Much-heralded fourth-generation methodologies offer the best hope for relieving the "software bottleneck," but they will not work until DP and management make a better effort to understand one other, according to Jeffrey Egglestone, president of Information Methods Corp. of Waltham, Mass.

In the meantime, he indicated, many organizations are shopping for

sophisticated programming tools without doing the management-DP groundwork that will help the tools work effectively.

"We need more tools, but we also need better understanding of what we need," Egglestone said at a recent seminar here titled "The Information Engineering Revolution."

Fourth-generation methodologies will change DP's role but not eliminate it, he asserted. While management determines application priorities, DP can establish a data resource to serve them. End users will increasingly have facilities to develop simple applications, he added, but there is still plenty of room for DP to de-

sign complex business models.

Management too often forces DP into short-term projects, resulting in a complex spiderweb of applications, Egglestone said. Moreover, DP has not shed the perspective developed during the early years of computing. "Because the technology was so complex, we simply concentrated on getting up a program," he said.

Fourth-generation methodologies offer a chance, for the first time, to build a unified data model upon which applications can be built. "We need a horizontal data perspective rather than a vertical applications perspective," he said.

Egglestone said the complexity of

most data models has led management to make decisions based on strategies rather than data, thus ignoring "one of our most valuable corporate resources."

"Fourth-generation methodologies provide a way by which business and data professionals can find expressions of business planning," he said. "And these planning models are ways to evaluate the business by giving feedback and providing a clear, concise vehicle for translating plans into action. It provides a platform for making decisions."

Frustration Building

However, fourth generation methodologies cannot proceed in the traditional DP context, he asserted. Standard methodologies have failed to include the user in any meaningful role and have subordinated data to procedures. Frustration has been building in the user community about the DP power base, he said.

Fourth-generation methodologies, in contrast, are end-user-driven, with the focus on the data rather than the procedures. Business objectives now drive system development and the physical process of data processing has been entirely separated from the logical process. "True fourth-generation methodology has gone from a systems planning approach to a business planning approach," he said.

"We have succeeded over the years in creating a great deal of confusion," he asserted. "Projects have been weighted down with a long-winded life cycle. There's no real hard set of techniques that can cut down this cycle."

The potential for developing creative problem-solving techniques is tremendous, Egglestone asserted, but fourth-generation methodologies will fall flat unless DP is willing to look at new perspectives.

"Currently we ask, 'What do we do today?' and then proceed incrementally from that," he said. "We proceed in the direction of getting what we've always wanted in the first place. The mind set is current, and there's no way to discover how things should be." He added that current methods tend to lock out all but a few analysts in the process of moving from analysis to design.

The consultant pointed to a survey by the IBM user group Share, which listed common reasons for failure of management information systems (MIS) projects. They included insufficient understanding of the organization's real needs, inadequate management control, inadequate DP technology and insufficient acknowledgment of necessary skills.

"The answer is to develop a communication base so that everybody understands each other better," he advised. "Let's not lose sight of the fact that we're all working in a business."

Project management provides a good opportunity to learn about the business, Egglestone said. It offers visibility within the organization and a chance to sit in on management meetings from which DP might otherwise be excluded.

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IACSS to Offer DP Security Certification Exam

By Bob Johnson

CW New York Bureau

WASHINGTON, D.C. — The International Association for Computer Systems Security (IACSS) announced plans at a seminar here last week to sponsor a "Computer Systems Security Professional" certification examination.

According to a spokesman for IACSS, which claims an international membership of nearly 500, the examination will be held in July at the association's annual regional conference and exhibition in Florida. Specific requirements for eligibility were not yet available. However, the spokesman said that an "appropriate combination of education and work in the field of DP security" will be

the primary considerations.

The test will also be given in Europe and Asia in August and September, respectively, IACSS said.

The motivation behind the certification plan stems from a growing need within the computer industry for a professional who thoroughly knows how to secure the physical and data security requirements of a company's information resources, the IACSS spokesman said.

"There is now an identified body of knowledge in data security which has developed over the years and has emerged as an outgrowth of other security areas. We can now put together a comprehensive examination that will benefit the employer by giving him the ability to measure an appli-

cant's qualifications, and it will benefit the employee because now he has something which will qualify his position as a true profession," the spokesman maintained.

Traditionally, the data security officer has emerged as the result of a reaction to a DP security problem in an organization. Through certification, IACSS hopes to make the industry aware of the need for prevention in terms of systems security and to make corporate management aware of the importance of the security officer's position.

Questions for the eight-hour test are being gathered from working professionals in the DP security field. The spokesman explained that 40 questions are being solicited from

various security professionals — 20 at the neophyte level (less than one year's experience) and 20 at the advanced level (five years or more of DP security experience). There will be no "grandfather clause," IACSS noted, saying that certification will be given only to those who meet the test's requirements and pass the examination.

Information on the examination is available from IACSS, Six Swathmore Lane, Dix Hills, N.Y. 11746.

Micros Help Cut Paper Load

By Tom Henkel

CW Staff

HARTFORD, Conn. — A paper shuffler's dream: 32 million pieces of paper, enough to make a stack 10,000-feet tall, has disappeared from the DP department at Travelers Insurance Co. Not by magic, but as the result of a companywide project begun here about a year ago to cut overall paper consumption.

Travelers' project was spearheaded by the firm's DP department to counter an average 18% annual increase in the number of documents produced.

According to Senior Vice-President Joseph T. Brophy, the plan involved some common sense and some changes in the way the insurance firm does business.

"We were producing 18,000 to 20,000 lines [of printed material] a day. No one can read that. We had to clean up our act in DP," Brophy said, noting that the DP department routinely printed reports that no one ever read. Some reports were printed simply because they always had been printed in the past, he added.

The effort to reduce paper consumption in the DP department focused on three basic areas.

First, Brophy said, Travelers decided to cut down on the number of printed documents produced each year. That involved several aspects, such as eliminating some reports, reducing the number of copies of reports that had to be printed and using microfiche in place of paper whenever possible.

Second, Travelers began promoting group presentations of ideas through teleconferencing, as opposed to passing around multiple copies of printed reports to various departments.

Last, Brophy explained, Travelers has been calling on its network of more than 800 microcomputers [CW, July 19] as a way of eliminating paper. Instead of using hard-copy reports, employees can either send electronic reports or carry to a meeting a floppy disk instead of a printed report, Brophy said.

While pleased with the progress at Travelers, Brophy said the moves to automation may have their disadvantages, too.

"I'm sure we'll have more problems," Brophy noted, adding that Travelers has avoided major problems by storing most of its vital data in mass storage and downloading copies of the information to the microcomputer users.

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Familiarity Breeds Effective Program DP Security Officers Urged to View Big Picture

By Bob Johnson

CW New York Bureau

WASHINGTON, D.C. — Data security officers must familiarize themselves with everything from systems hardware to corporate hiring procedures in order to develop a good computer security program.

That is the opinion expressed by Robert J. Wilk, president of the International Association for Computer Systems Security (IACSS), during a seminar last week focusing on DP security.

The seminar provided security guidelines for specialized areas including hardware, software, planning and procedures, personnel and communications.

In terms of systems hardware and magnetic media, security officers must protect their shops against the dangers of smoke, fire, water or other fluid leaks, explosions, radio frequency or electromagnetic interference and compromising emanations, Wilk said.

Countermeasures Available

A wide variety of technical countermeasures are currently available to offer this protection. But these devices and procedures cannot help unless the data security officer is aware of them, he noted.

In addition, Wilk pointed out that the hardware support environment, including items such as air conditioning and uninterruptible power supply systems, must be continually reviewed in order to minimize any possibility of system downtime.

"The integrity of the hardware must also be assured so that it does only what it was designed to do and no more," the speaker stated.

Wilk cautioned that outside technicians, such as vendor maintenance personnel, should always be escorted by in-house staff members who really know what a system can do, in an effort to protect against any tampering with hardware functions.

"Although these possibilities seem remote, the fact of the matter is that hardware security breaches do happen," he said.

The actual physical security of hardware must be protected as well, Wilk noted. He advised security officers to establish physical and biometric access control systems, degaussers, closed-circuit television, microwave or infrared intrusion systems and fire detection and control systems.

Monitoring a Must

In terms of software, the integrity and control of the operating system software, applications programs and vendor software must be monitored, Wilk continued.

"Appropriate measures must be employed to assure that auditable controls are embedded at certain points in sensitive applications programs. This must be done as an ongoing effort of the systems development process and closely watched for effective quality assurance," he said.

At least seven major access control software packages that could protect against unauthorized access to systems resources are on the market to-

day and should be evaluated, according to Wilk.

"Complete and tested" contingency plans that take into account a wide variety of emergency responses for the protection of life and property; backup plans that identify resources necessary to sustain critical applications; and a recovery plan that outlines all steps necessary to resume DP operations at the original site or another site are the major aspects of proper security planning, Wilk explained.

He pointed to the development of a security practices and procedures manual as another major security planning consideration.

This manual should outline the responsibilities and duties regarding security for each employee by functional and management position.

Communications networks require that DPers review how and when sensitive and critical data passes along them, Wilk said.

Data speed parameters and transmission paths through the network; cryptographic considerations; hardware configuration of the total network; and practices and procedures used to maintain, test and support the network must be addressed as well by DP security officers.

Personnel is "unquestionably the most difficult area of DP security to

deal with," Wilk noted. Individual integrity is not constant over time for all individuals and the threat of fraud by employees is a DP fact of life, he said.

The security expert maintained that a great deal of cooperation must exist between a company's personnel department and its DP managers in order to develop hiring practices that will legally screen out potential security threats.

According to Wilk, programs designed to increase morale and motivation and employee computer systems security training and education are also important personnel considerations.



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CW 4/4

Survey Warns Against Stable Training Budgets

(Continued from Page 1)

"When the average department spends \$24.7 million for DP and \$304,200 for training, the future of the industry is going to suffer," the report charged. "Particularly, this is so as the need for training moves outside the DP department itself to encompass end users."

"Training would appear to be the only method for keeping these people current, and trainers will find them to be intelligent, articulate and demanding of the latest techniques and skills," the report said.

The "most significant shift" in this year's survey, according to BSI President Ben Knowles, concerned the category of new plans and needed subjects, in which the largest new subject area was user training (see Figure 1). "This represents a major departure from the DP-only mission to a much more externally oriented mission," Knowles said.

The average training budget in dollars was \$304,200. This represented a median budget of \$150,000 and a

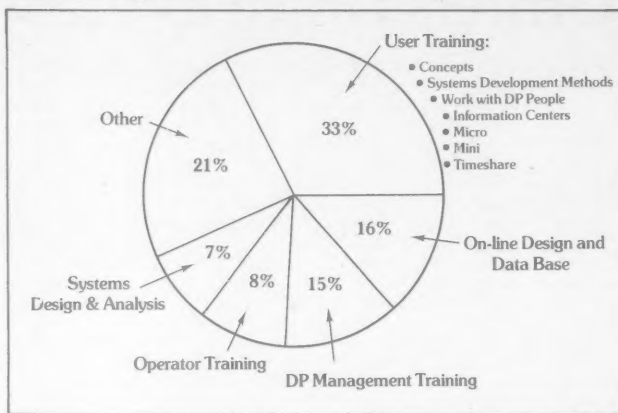


Figure 1: Training Subject Areas

median training expenditure of \$802 per person. The direction of the training budget was up for 40% of the respondents, the same for 35% and down for 25%. Last year, only

12% of the departments expected their training budgets to go down, Knowles pointed out.

In addition, every category of DP employee took a cut in its average

annual number of training days (see Figure 2). The decreases were small in several cases, but the direction is "unmistakable," Knowles noted. "It is clear that the individual employee was sacrificed to meet other department goals."

On the positive side, DP trainer salaries kept ahead of inflation in 1982, growing 9% to an average of \$31,900 (see Figure 3), but still lagged behind the "All Respondents" category that included other types of managers. About one DP trainer in three is now paid more than \$35,000, the survey said.

Salaries were the highest in the "DP Products and Services" industry group and lowest in "Wholesale/Retail." The West and Canada (in Canadian dollars) were leaders in DP salaries this year, with the South and Midwest continuing to lag, according to the survey.

Results of the survey are free to participants and cost \$30 for others from BSI, 4720 Montgomery Lane, Bethesda, Md. 20814.

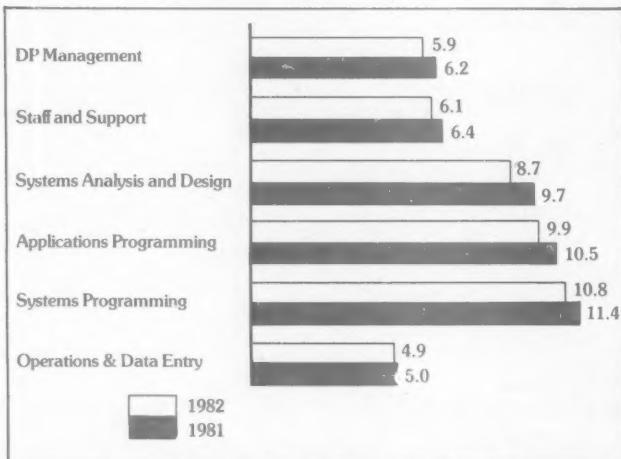


Figure 2: DP Employee Training Days

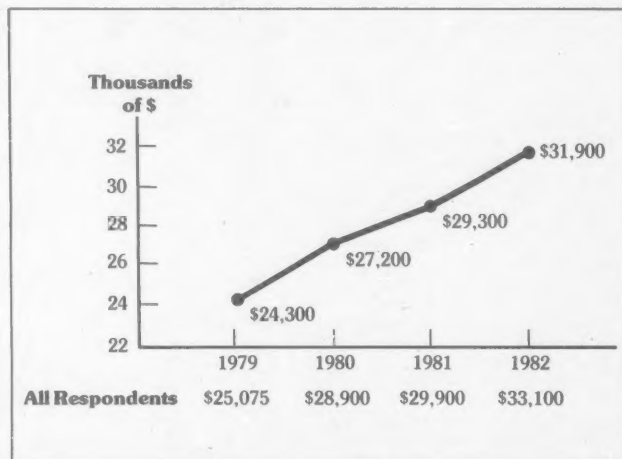


Figure 3: DP Trainer Salaries



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Better Skills, Productivity Rise Cited as Reasons for DP Training

BETHESDA, Md. — When Brandon Systems Institute, Inc. asked respondents to its 1982 DP Training Survey why they provided DP training, it received some surprising answers.

"The two leading reasons could have been predicted: to improve skills for present work loads and to increase worker productivity," the survey noted.

"It was not expected that improving morale would be more important than reducing hiring costs by providing entry-level training or reducing turnover," the study said.

Where do DP trainers run into trouble? The two biggest problems in 1982 were "freeing students from work" for training sessions and "low daily priority for training," the survey found. Budget constraints and "poor communications with managers" also ranked high.

"Some problems that ranked high in past years have paled in significance," BSI President Ben Knowles noted, "including facilities, course

quality and lack of support for training plans."

Other problems frequently mentioned include overtaxed time of DP trainers, lack of staff and rapidly changing department priorities that make planning impossible.

Sigdoc Meeting Set

SEATTLE — Richard Burdick of Boeing Computer Services Co. will address "Documenters and Corporate Management" at the Second International Conference on Systems Documentation here April 29-30.

The conference is sponsored by the Association for Computing Machinery's Special Interest Group for System Documentation (Sigdoc). The event will cover topics from structuring and styling a specific publication to long-term document planning for the evolution of information.

Cost for the conference is \$150 for Sigdoc members and \$175 for non-members. Sigdoc can be reached through P.O. Box 24346, Mail Stop IE-09, Seattle, Wash. 98124.

BSI Poll Sees Micro User Training in Works for '84

BETHESDA, Md. — "User training, including assistance to microcomputer users, will dominate changes in DP training plans for 1983-84," according to Brandon Systems Institute, Inc. (BSI) President Ben Knowles.

He drew that conclusion from BSI's recently released 1982 DP Training Survey (see story on Page 14).

While there is clearly a need for microcomputer user training in the work place, to date most companies have made only "tentative steps" in that direction, according to a spokesman for BSI.

Future plans, however, are another matter. Survey respondents indicated that regarding new functions, "By far, the largest number of departments plan to provide assistance to microcomputer users [51%]" (see Figure 4).

On the other hand, it may be not-

	Yes	No	Already Implemented
CAI/CBT	44%	21	35
Information Center	39	19	42
Office Automation	43	23	34
Assistance for Micro Users	51	23	26

Figure 4: Training Plans

BSI Chart

ed that of the departments that have already implemented any of the four choices, the smallest number (26%) have gone ahead with that particular

function.

"This year has marked the beginning of a sharp and conscious recognition of the impact that microcomputers will [have] in data processing and some tentative steps toward accommodating such users," the survey said.

In the area of computer-aided instruction/computer-based training (CAI/CBT), more than one-third of the respondents said they had already implemented it in some form. In fact, 88% of the large companies had either implemented it or planned to, the survey found, a fact that confounded BSI.

"We are puzzled about where the

CAI/CBT development and usage are funded in DP budgets," the survey report noted. "The DP training budgets indicate a maximum of \$15,200 average annual expenditure for CAI/CBT. This would not seem adequate to fund course development/procurement, much less instruction and supervision costs."

BSI posed the unanswered question: "Is it possible that the high cost of this type of training is being buried in someone else's budget, such as operations overhead, and is not being recognized as a training cost?"

'Coming Into Their Own'

Information centers are "coming into their own," BSI discovered, penetrating heavily into the departments of 200 or more persons. Office automation is proceeding with DP support in most companies as well.

The size of a department appeared to influence future plans, the survey found. Small departments responded "no" to 25% to 35% of the four items, BSI explained, while bigger departments answered "no" to 10% to 15% of the four items, with 40% to 60% of the respondents indicating they had already implemented.

"The latter three items represent user services that will become an accepted part of DP service in the future," BSI concluded, although "Fully one-third of the smaller departments are not now preparing to provide those services."

Survey's Omission of Questions Traced to Pending Libel Suit

BETHESDA, Md. — This year marks the first time since Brandon Systems Institute, Inc. (BSI) started its DP Training Survey in 1976 that it has not asked users their preferences among specific multimedia training vendors.

The reason can be traced to a pending libel suit filed by BSI last summer [CW, Aug. 16] against Advanced Systems, Inc. (ASI) of Arlington Heights, Ill., one of the top three multimedia DP training vendors in the U.S.

BSI's court complaint included an internal ASI field sales bulletin stating that the names of the persons surveyed came from a list "comprised of Brandon- and Deltak, [Inc.] supplied names only."

BSI called those statements "inaccurate, false and misleading" and is seeking \$1 million in compensatory damages and \$1 million in punitive damages. Deltak ranked first in the 1981 survey's vendor-preference section, while ASI ranked low [CW, Feb. 8, 1982].

Bimonthly Newsletter Offers Tips on DP Marketing Strategies

FEDERAL WAY, Wash. — Science Information Associates, a Seattle-based consulting firm specializing in computer documentation, has announced publication of a bimonthly newsletter, "Documentation Etc."

Distributed internationally, "Documentation Etc." reportedly emphasizes practical techniques to help computer professionals develop publications and marketing strategies.

Each issue of the newsletter will feature an in-depth article. The first issue focuses on readability — how graphics design can make a manual easier to read. Future issues will cover

all aspects of technical and sales publications. In addition, each issue includes a column answering questions submitted by readers.

Until May 31, a one-year subscription (six issues) to the newsletter costs \$24/year. In addition, charter members reportedly will receive a free copy of "Documenting With Style — A Style Guide for Computer Professionals." After May 31, rates will increase to \$30. More information is available from Science Information Associates, Suite 106, Pacific Plaza One, 32700 Pacific Highway S., Federal Way, Wash. 98003.

Deltak Video Training Series Bow

NAPERVILLE, Ill. — Two video training series, called "Introduction to the Data Center" and "Integrating DP and Office Automation," have been introduced here by Deltak, Inc.

The first was designed to acquaint entry-level personnel with data entry, data control and computer operations in the data center, according to Deltak. It reportedly takes under two hours to complete and can be used for self-instruction or group presentation. Participants are urged to complete Deltak's "Working With the Computer" course before taking this course.

"Integrating DP and Office Automation" is said to focus on technical and organizational issues involved in building systems to integrate traditional DP functions, such as numerical data processing, text, voice and image processing. It takes roughly three hours to complete this course, Deltak said.

The courses rent for between \$50 and \$125 per course per month and are also available for purchase for \$1,750 each. Further information is available from the firm, located at 1751 W. Diehl Road, Naperville, Ill. 60566.

Computerworld/Mexico talks to computer people south of the border.



There are currently 15,000 installed computers on 12,000 sites in Mexico. These include mainframes, medium and small computers as well as personal computers. Experts forecast the sale of small, medium and large computers to grow at an average annual increase of 20% during the 1980s, despite Mexico's current economic problems. Minicomputers will be in great demand since they are small, affordable and efficient. U.S. manufacturers have maintained a 80% market share for the past three years with sales of over \$182 million. *Computerworld/Mexico* can bring your message to 10,000 key-decision makers in the Mexican computer community. Published on alternate

Mondays, *Computerworld/Mexico* covers all the latest developments in hardware, software and terminals in addition to data processing and computer related subjects. Its goal is to provide useful information to data processing professionals throughout Mexico and Central America.

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HP Users' Dissatisfaction Spawns 'Supergroup'

By Susan Blakeney
CW Staff

SALT LAKE CITY, Utah — Dissatisfaction with the Hewlett-Packard Co. HP 3000 International Users Group, Inc.'s organization led a group of users last year to form their own association.

The new HP Users Association Management Corp., or "Supergroup" as it was dubbed by its founders, also opted for publishing its own bi-monthly magazine — called *Supergroup Association* — rather than sticking with the international group's *Interact* magazine. Formed to fill a void for the HP 3000 software developer, the slick, four-color magazine is dedicated to the promulgation of ideas and techniques among sophis-

ticated users of HP's HP 3000 series of business computers.

"By sophisticated, we mean users who devote a significant amount of time to in-house development and optimization projects," explained Gerald Wise, managing editor of the *Supergroup Association*. The publication is included in the annual *Supergroup* membership fee of \$25.

"We see ourselves as a constructive adversary to Hewlett-Packard and to other vendors on behalf of our members... our primary responsibility is to the needs of our members, and we believe vendors share with us the understanding that participation in the *Supergroup Association* is linked to our credibility as an unbiased, objective medium of exchange

for ideas and techniques."

Despite its role as the "constructive adversary" on matters of HP corporate policy, HP maintenance problems and the inclusion of plug-compatible vendors' product announcements, the magazine has been well received by HP as well as its users. He claimed the vendor has been very responsive to input from *Supergroup*, and also that the magazine enjoys a good relationship with the vendor, even though the magazine has spoken out against it.

"For example, HP and the users are supposed to have a friendly relationship. HP is not supposed to announce things until they really exist.

"With the company's growth they were starting to preannounce prod-

ucts. It was not the cooperative effort that it once was. We've taken a stand on this," Wise explained.

Larry Simonsen, software coordinator at Valtek, Inc. in Springville, Utah, and a member of *Supergroup*, sees the *Supergroup* organization as a mixed bag: "I'm very impressed with the magazine... it includes lots of great articles on front-end software development which I find very helpful.

"But I'm disappointed with their users group," he continued. "There's not enough communication among the users themselves and the meetings don't happen often enough." Simonsen said *Supergroup* meetings were supposed to happen quarterly, and "they haven't held their December meeting yet."

Jerry Kopecky, systems operations manager at the Illinois Criminal Justice Information Authority in Chicago, held the opposite view. He thinks the *Supergroup* users group's meetings are much better than the HP 3000 International Users Group's meetings because "you can get more technical information — only people who are familiar with the technology come."

Although Kopecky has only attended one *Supergroup* meeting, he found it a "better environment for the exchange of information" than the international users group meetings he has attended: "I met with people in a small informal setting and got to talking one-on-one with some good people." He said the international meetings tend to involve "hundreds of people flocking around... and it's really hard to communicate."

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Planning Meet Set for June 7

NEW YORK — With a theme of "Surviving Today's Telecommunications Turmoil Through Strategic Planning, *Decision Point 83*, will be held here June 7-9.

The three-day conference is dedicated to analyzing the telecommunications environment in a three-part format that includes: presenting the state of the telecommunications industry and technology today, outlining the crucial factors that can be expected to shape the future of telecommunications and demonstrating how to develop an effective tactical and strategic plan which enables exploitation of the coming opportunities while minimizing inevitable risks.

The conference is a management-oriented program for users and vendors needing to make business and marketing plans in the wake of the AT&T divestiture, conference organizers said.

The conference is cosponsored by *Computerworld On Communications*, The DMW Group, Inc. and Communication Network.

The cost of attending all three days of *Decision Point 83* is \$995, with single- and double-day attendance prices also available from DMW Group, Inc., Publishing and Seminar Division, 2020 Hogback Road, Ann Arbor, Mich. 48104.

SEE US AT NCC, MAY 16-19, BOOTH #S-5050.

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For New Privacy Protection Legislation Privacy Coalition Seeks Congressional Support

By Jake Kirchner

CW Washington Bureau

WASHINGTON, D.C. — A recently formed coalition of privacy advocates is meeting with congressional aides to try to rekindle a drive for new privacy protection legislation.

Seeking to develop a specific, short-term legislative agenda and a long-term privacy awareness program, the aim of the group is to establish "a working group of people and organizations who are interested in privacy-technology issues," according to John Shattuck, director of the American Civil Liberties Union's (ACLU) national legislative office. Shattuck has been conducting the meetings of the new group.

The meetings so far have brought together staffers from Senate and House committees having privacy law oversight responsibility as well as members from the congressional Office of Technology Assessment, ACLU officials, veterans of the former Privacy Protection Study Commission — ex-President Carter's privacy program — and representatives of academia and various legal groups, including the American Bar Association. According to attendees, items of concern to the group include:

- Increased government use of computer matching techniques to police federal benefits programs.
- The Federal Bureau of Investigation's National Crime Information Center computer/telecommunications systems and their proposed use by the Secret Service to monitor activities of people who might threaten government officials.
- Computer security and a proposed federal computer crime law.
- Prospects for development of a national identity system, particularly as proposed in pending immigration reform legislation.
- Restrictions on dissemination of research and development results in the name of national security.
- European restrictions on trans-border data flows to protect personal privacy.

Shattuck identified computer matching and possible amendments to the 1974 Privacy Act as items for immediate action by the group, which, he said, is now "taking stock of the situation on [Capitol] Hill." Besides working on specific issues

Insurance Association To Meet May 18-20

INDIANAPOLIS — The spring meeting of the Life Insurance Systems Association is slated to take place here May 18-20, co-hosted by the Jefferson National Life Insurance and Indianapolis Life Insurance companies.

The optimization of consolidated functions along with members' experiences and ideas on insurance systems procedures are topics that will be addressed.

Registration for the meeting costs \$45. Further details are available from the Life Insurance Systems Association at: Horace Mann Life, 1 Horace Mann Plaza, Springfield, Ill. 62715.

with Congress "on the eve of 1984," he said the ACLU is considering developing a long-range program of public awareness and education related to the need for heightened privacy protection in an increasingly automated society.

Some congressional sources indicated the climate in Congress for additional privacy legislation is poor.

But there is some activity on Capitol Hill in this area. The Senate Government Affairs Subcommittee on Oversight of Government Management, which held hearings last December on computer matching, will develop legislation on this subject soon, according to one subcommittee

staff member. The approach of the bill has not been defined, the aide said, but will probably concentrate on increased centralized oversight of matching programs.

The subcommittee also hopes to hold hearings soon on computer security in the federal government, according to the staff member, who said the outlook for privacy legislation in the Senate "is bad but ... getting better."

In the House, the Government Operations Subcommittee on Information, Justice and Agriculture is planning several days of hearings on general oversight of the Privacy Act sometime this summer. But one

House staff member, who has worked on privacy matters for a number of years, said, "There really is no interest in privacy legislation [here] ... I don't see anyone in the House ... who has expressed much interest."

Similarly, White House receptivity to privacy legislation is described as even more limited. According to one federal official who recently left the government after working on privacy issues, there is "zero interest" within the administration for more privacy legislation. "The administration would oppose anything that strengthens the Privacy Act," he said.

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Net Provides Scientific Breakthrough for Nasa

HUNTSVILLE, Ala. — The National Aeronautics and Space Administration's (Nasa) Data System Technology Program (DSTP), currently under development at the Marshall Space Flight Center here, provides a glimpse of the technology that may characterize mass data storage systems of the future.

The mass memory assembler resembles a jukebox, according to Douglas Thomas, a computer analyst and manager of the DSTP project at Marshall. The storage array consists of 128 14-in. optical disks, each composed of an aluminum substrate with a terrilium coating and capable of storing 83G bits.

Data is permanently recorded by a laser beam focused on each disk as it

revolves on a turntable.

The nucleus of the system is a seven-port, fiber-optic bus, with each port attached to a passive star coupler. Each port includes a transmitter and receiver with two pairs of dual buffers and port logic that can be interfaced to a standard data bus. Transmission is achieved by laser diode, Thomas said.

The system will include a relational data base management system (DBMS) based on Oracle Systems, Inc. Oracle with package management software developed at the Goddard Space Flight Center in Greenbelt, Md.

Using a packetized data flow structure that bypasses I/O channels and internal memory, DSTP will

handle up to 50M bit/sec of data. The packetized system logically breaks up the data stream according to parameters set by the user, Thomas said. At first, data will be broken into packets of up to 1M bit, with the first 512 bits earmarked for headers defined by Nasa and the user.

Three Digital Equipment Corp. VAX 11/780 superminicomputers control DSTP functions, Thomas explained. Data coming over the fiber-optic bus is sent to two ports. A 512-bit header field is copied into an intermediate storage module and is kept for processing by one VAX into an index. The first VAX also performs package management routines, creates the directory and provides interfaces to the user and the

Oracle DBMS.

A second port accepts the entire data packet and writes it at 50M bit/sec onto an optical disk. A second VAX runs configuration management software and includes the master controller for the bus. The third computer runs file management software and retrieves data from the disks.

The three VAXs are tied together with triport memory. A user performing data analysis accesses the system through the first VAX, which requests the data. The second VAX transfers the request and monitors traffic flow, and the third VAX retrieves the data.

Thomas said that access time is in milliseconds if the proper disk is on the turntable. "In the worst case, access time is no more than 5½ seconds," he said.

The network that will be attached to DSTP is already in use, running on a single VAX. The Space Plasma Computer Analysis Network (Scan) uses DEC RPO-VII disk drives instead of optical disks. Eight remote sites are on Scan and another six or eight additional sites will probably be added in the near term, Thomas said. The potential number of users is much higher.

"One of the things we're going to be looking at is how many users we can put on the system," Thomas maintained.

Scan Facilitates Science Analysis

HUNTSVILLE, Ala. — The communications network for a data storage and retrieval system under development at the National Aeronautics and Space Administration (Nasa) has provided a scientific breakthrough, even though the project is still in an early stage.

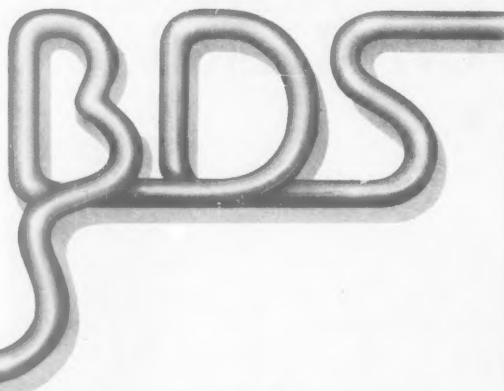
The Space Plasma Computer Analysis Network (Scan) links together nine remote sites around the country for retrieval and analysis of satellite data. Scan is part of the Data System Technology Program (DSTP), a Nasa project to develop a mass memory system capable of storing and transmitting at the rate of 50M bit/sec.

Scan enables research scientists, for the first time, to manipulate and analyze data from diverse experiments in an on-line environment, according to Dr. James Green, an aerospace scientist at the Space Science Laboratory here. Although the test system currently in use is comparatively slow (150K bit/sec), the communications network recently led to a potentially significant discovery.

"The Dynamic Explorer [satellite] measures evaporation of vapor into space and checks to see if we are losing hydrogen and oxygen," Green said. Meanwhile, "Utah State University runs radar which monitors the ionosphere from the ground."

"We compared data from the satellite with the ionospheric data and found some fantastic things. We were actually losing nitrogen," Green said. These initial observations will lead to more tests "to look at that data and see if we are in danger from the loss of nitrogen."

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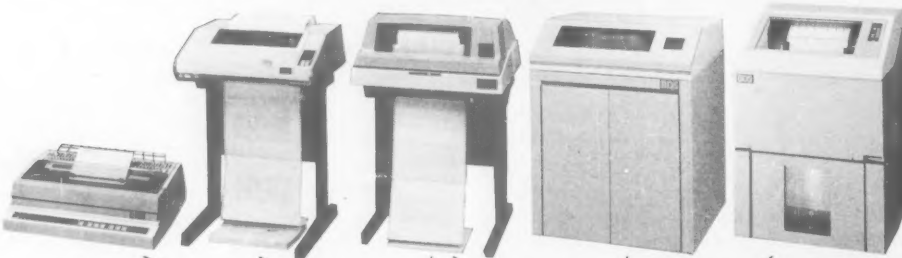
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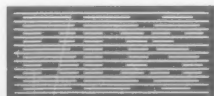
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Nasa Storage/Retrieval Net To Go On-Line June 1984

By Paul Gillin
CW Staff

HUNTSVILLE, Ala. — Computer scientists at the Marshall Space Flight Center here said it is like a jukebox, but 1950's sock hoppers never dreamed of anything like this.

The jukebox analogy is appropriate, however, for a massive data storage and retrieval system is currently being developed by the National Aeronautics and Space Administration (Nasa) to deal with an explosion in the amount of satellite data Nasa expects to process in coming years.

When put on-line in June 1984, the Data System Technology Program (DSTP) will make over 10T bits of data available on-line to users at universities and scientific laboratories around the country. The institutions keep tabs on the myriad scientific experiments and observations performed by satellites orbiting the globe.

DSTP will be centered around three Digital Equipment Corp. VAX-11/780 computers and 128 tellurium-coated optical disks, each capable of storing 83G bits of data. The disks will be arranged in an array similar to that found in a jukebox and read and written on by a laser scanning a turntable not unlike a phonograph's.

The system will be tied together by a fiber-optic bus that is being developed by IIT under a subcontract with OAO Corp., Nasa's prime contractor on the project.

A customized relational data base management system based on Oracle Systems, Inc. Oracle will offer capabilities for correlative analysis, another feature never before used on this kind of system, according to Dr. James Green, an aerospace scientist at the Space Science Laboratory here. The project is expected to cost \$5 million.

A miniature version of DSTP, without the sophisticated fiber-optic and video hardware, is being tested at the Space Science Laboratory. The project has already provided tangible results (see stories on Page 28).

"The network has opened a huge door," according to Green, who coordinates the test system. "Once data comes across the line to my system, I can put it into any format I want. I can now access data in minutes or seconds that once took me months to get hold of."

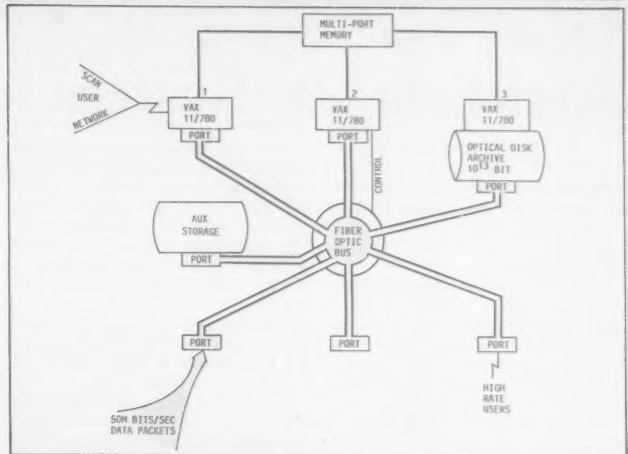
The need for DSTP grew out of rapid advances in satellite technology, Green said. The space shuttle is soon expected to be tossing satellites into orbit by the dozens with the data stream from the devices expected to reach 50M bit/sec in a few years. However, current Nasa technology can handle only 150K bit/sec. "No computer can make up data tapes fast enough to satisfy Goddard [Space Center's] insatiable appetite," he said. "We could find ourselves a month behind the very first day."

The space shuttle has accentuated the need for fast data analysis because it can run experiments while in flight. Under the old processing system, however, data was not analyzed for 60 to 90 days after it was received. With shuttles eventually expected to be taking off biweekly, "we have to

have access to our data and other data faster," Green said.

Under the current system, data coming into the Goddard Space Center in Greenbelt, Md., is split into 10 categories, measuring such factors as magnetic field, solar wind and radio noise. The data is recorded on magnetic tape and distributed to research centers specializing in the different fields of analysis.

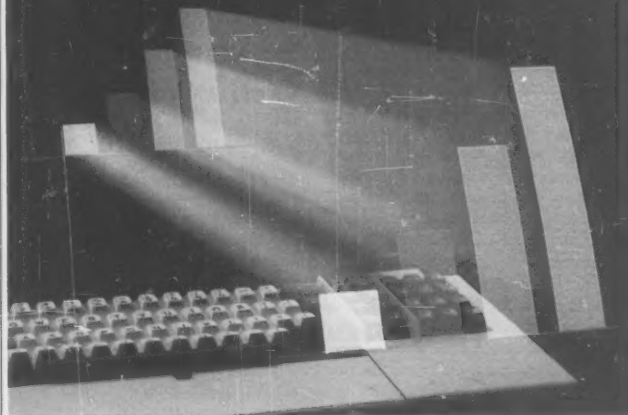
The diversity of computer configurations in the different research areas has sometimes made data exchange impossible. Under DSTP, Green noted, relational DBMS facilities will be available on-line to the participating institutions.



DBMS/Archive and Network

Nasa Chart

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A Needle in an Intergalactic Haystack

Scientists Use System to Eavesdrop in Space

By Paul Gillin
CW Staff

HARVARD, Mass. — If anyone out in space has ever wanted to call us, now is the time to do so. For at least the next four years, someone will be listening.

A radio telescope in the tiny Massachusetts town of Harvard has been waiting patiently since early March for messages from outer space. The 85-ft dish located at the Oak Ridge Observatory is a project of the Planetary Society, a group of scientists, headed by astronomer Carl Sagan, that is searching for extraterrestrial intelligence.

Listening for messages from other beings is nothing new, but the Oak Ridge project is the first experiment to do so on a continuous basis, according to the society. The monitoring system centers on two specially designed Motorola, Inc. 68000 microprocessor-based computers containing 384K bytes of memory and a customized Wicat Systems, Inc. 150 WS microcomputer that sorts out and stores any suspicious signals.

Each day, the radio telescope monitors a circular patch of sky about the size of a full moon, according to Paul Horowitz, the Harvard University physicist who developed the 68000-based computers and who is coordinating the experiment. Over the four-year life span of the project, the receiver will scan about 68% of the heavens visible from Earth, getting at least three or four looks at each point in the sky.

"If we see anything we ought to see it more than once," according to Harvard's Horowitz.

The specialized microcomputers perform Fourier transforms, a mathematical process that converts the digital signals coming out of the radio telescope into a frequency spectrum. The computers take samples 2,000 times per second, enabling the system to monitor 128,000 narrow frequencies.

The listening experiment is so delicate, Horowitz noted, that the receiver is adjusted 30 times per second for the rotation of the earth.

The system does not attempt to capture all the billions of bits of data it receives, the physicist said. "We throw most of it away. We keep anything that's got a suspicious signal,

something with a frequency component bigger than 10 standard deviation."

The heart of the computerized scanning system is the Wicat computer, which runs custom software designed to recognize any unusual frequencies, Horowitz noted. "It looks for peaks, archives things on Winchester disks, controls the receiver in real-time, archives data on video tape and computes the earth's motion and adjusts the receiver accordingly," he said. The Wicat also maintains a constant graphic read-out.

"Twice a week, we look at the suspicious signals and decide if they are

suspicious enough," Horowitz said. "If they are, we go to that place in the sky and look again." If the scientists find an unusual or repeated signal, they will contact other observatories to see if the same pulse has been recorded. "Then we'll search for natural explanations or look for some information content."

Admitting that project scientists are looking for a needle in an intergalactic haystack, Horowitz tempered his expectations with realism. "The chances of finding anything are so small that I don't think we'll waste our time" trying to decode a message, he said. "Just finding the signal is the big problem."



CW Photo by P. Gillin
Planetary Society's 85-Ft Dish

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Managers on the Move



Vince Heiker

VINCE HEIKER has been named director of management information systems (MIS) for the Sunmark Companies in St. Louis.

Before joining Sunmark, Heiker was MIS director for the Packaging Division of Boise Cascade. Prior to that, he was MIS director at Permaneer Corp.

In his new position he will be responsible for all MIS functions for Sunmark's divisions.

Heiker received a B.S. in business from Washington University and an MBA from Southern Illinois University.

Sunmark is a confectionery, snack and health foods operation.

...

F.C. BRUMMETT JR. has been ap-

pointed executive director of systems and services for Forest Oil Corp. in Denver.

Brummett has 22 years of experience in the oil and gas field and computer-related experience. Before joining Forest in July 1981 as director of systems and computer services, he was associated with Gulf Oil and the Coastal Corp., where he served as director of systems and computer services.

He has a degree in chemical engineering from Texas A&M University and is completing the Executive MBA program at the University of Denver.

...

SOREN JENSEN has joined the systems staff of Computer Identics

Corp. in Canton, Mass., and will serve in the capacity of national systems application manager.

Jensen, a native of Denmark, was formerly manager of sortation systems for Logan Conveyor.

Previously, he held various technical and marketing positions for Kosan-Crisplant of Denmark, a leading European supplier of conveying and sortation systems.

In his new position Jensen will provide systems support to Computer Identics' sales staff and distributors, including direct customer contact in proposing system solutions as well as defining system specifications.

Computer Identics is a manufacturer of bar code scanning equipment and a supplier of scanner-based information and control systems used in manufacturing and distribution.

...

JOHN M. JACOBS has joined Temple, Barker & Sloane, Inc., an international management and economic consulting firm, as a general manager of the Information Management & Systems Group in Lexington, Mass.

Formerly vice-president and chief operating officer for Arthur D. Little Systems, Inc., he holds 20 years of managerial experience in information systems and data processing.

Jacobs has a B.A. from Colgate University in Hamilton, New York.

...

TERRY L. MORRISON has been appointed data processing officer of the Kemper Life Insurance Companies in Long Grove, Ill.

Morrison joined Kemper in 1971 as an actuarial assistant in Kemper's statistical actuarial department in Chicago.

Morrison graduated from Western Illinois University, with a bachelor of science degree in mathematics.

...

JAMES A. HARPER has been appointed vice-president of MIS/DP for Docutel/Olivetti Corp. in Dallas.

Harper previously was director of MIS for the Information Terminals Group of Harris Corp. in Dallas.

Prior to joining Harris he served 12 years with Johns-Manville Corp., where he held a variety of posts in programming, management systems and corporate planning.

Harper received a B.S. degree in business administration from Wagner College, N.Y.

...

JOHN B. ROBERTSON has been named vice-president of MIS for Duty Free Shoppers Group in Honolulu.

Before joining Duty Free, Robertson was vice-president of MIS for Burdine's in Florida. He was also with Federated Department Stores and Ralph's Grocery Co.

In addition, Robertson served as director of the Los Angeles Junior Chamber of Commerce and the Association for Retail Information Systems. He holds a certificate in data processing from the Data Processing Management Association.

Robertson holds a bachelor's degree in business administration and accounting from the University of California at Los Angeles.

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InSci

Marketing of MIS' Info Center Termed Essential

By Robert Batt

CW West Coast Bureau

SAN FRANCISCO — The management information system, (MIS) department must run its information center as a "business within a business" if it is to succeed, a seminar for computer consultants was told here recently.

Chris Grejtak, director of data base management systems products at National CSS, Inc., claimed marketing and promoting the information center concept within the organization is critical to its success.

"Currently, marketing takes a back seat because data processing professionals often do not understand the concepts of selling. If you do not tell prospective customers

how positive your services are, they have little incentive to take advantage of them," he added.

When attempting to sell the concept, avoid a hard product sell because often a user does not know the nature of his problem, Grejtak advised. Instead, he advocated promotion of local success stories that can be used to establish the image of the information center throughout an organization.

"Do not go first to areas of the company that are resistant to change. Rather, find departments within the organization that want to use information center concepts and products and sell your ideas to them. You have to talk to end users and listen to them; you need to understand their

problems and recommend solutions," he said.

MIS managers also must be able to communicate effectively with senior management and to justify the existence of an information center in terms of productivity improvements. Grejtak recommended that DP specialists set up and implement recognized business procedures such as system and account resource tracking and terminal usage.

The information center, he maintained, should have revenue, cost and profit objectives, and its thrust should be to grow substantially on an annual basis.

"To do these things, you need people with good communication skills who have product knowledge

but are not just technical heavies. It is important to have people who understand the business they are working in. Without an understanding of the dynamics of an organization, you cannot bring an application to fruition," he argued.

The information center should act as a clearing house for data, and MIS managers should work with their data base administrators to make sure that mechanisms are in place for accessing the data, he continued.

The people running the information center should be in a position to understand how its products are being used. "If you are able to track the use of a product and see where it is being misused, you are then in a position to trap that and deal with it," he explained.

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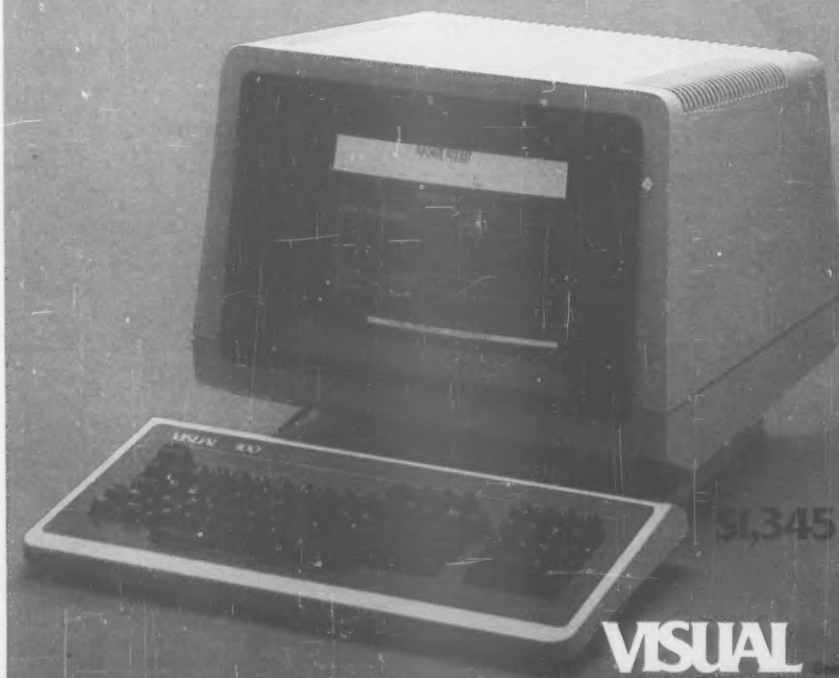
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Exec Touts User Guidance

By Marguerite Zientara

CW Staff

MORRIS PLAINS, N.J. — When introducing personal computers into the work place, management information systems (MIS) executives must take a conciliatory approach.

"Some enlightened organizations set up what they call personal computing functions out of corporate MIS that act as a guidance or educational vehicle to the rest of the corporation," explained James B. Webber, executive vice-president of Omicron, The Center for Systems Humanics, here.

Omicron is a membership of corporate, MIS, office automation and personnel/human resources executives from more than 35 corporations, who are committed to managing emerging people/technology issues effectively.

In a recent interview, Webber estimated there are now 900,000 personal computers installed in the U.S., with 25 million projected by 1990.

Progressive organizations "set up in-house computer stores so the users can come in during lunchtime and play with personals, try to put some things up and get comfortable with them in a very nonthreatening, non-intimidating environment," he added. "Then [users] can order a personal computer through the in-house store."

Such methods are intelligent ways of introducing personal computers into the company "without looking as though you're trying to maintain control of everything," he added. Instead of mandating MIS approval for personal computer purchases and limiting users to certain vendors, according to Webber, "more conciliatory kinds of management eliminate having people bringing in micros through the back door."

The conciliatory approach gives the MIS manager "a chance of [knowing] what kinds of things the users are doing," he said.

"That's what any corporate MIS officer is concerned about: protecting the corporation's interests in terms of whether users are properly documenting the systems they're putting up," he said.

For Information Systems Planning Survey Ties DP Success to Overall Business Plan

By Patricia Keefe
CW Staff

NEW YORK — Information systems planning stands a greater chance of succeeding if it is closely linked to the organization's overall business plan, according to a recent survey by Cresap, McCormick and Paget, Inc. (CMP), a management consulting firm here.

"Two important goals of information systems planning are, first, to assure that overall business programs receive the information systems support they need and, second, to allocate scarce information systems resources wisely," the director of the study, CMP principal Eric Knutsen, said. The survey found consistently that respondents who forged those links benefited on both counts, he added.

A third benefit cited in the study is the involvement of an informed general management in information systems activities.

The survey polled 334 major U.S. corporations on their practices in planning for information systems and in linking those plans with their overall business objectives. Information systems, for the purposes of the survey, comprise computers, communications networks and office automation equipment, either as stand-alone systems or in combination.

Over 95% of the respondents, equally divided between large manufacturing companies and nonmanufacturing firms, said they have some kind of plan in place for their infor-

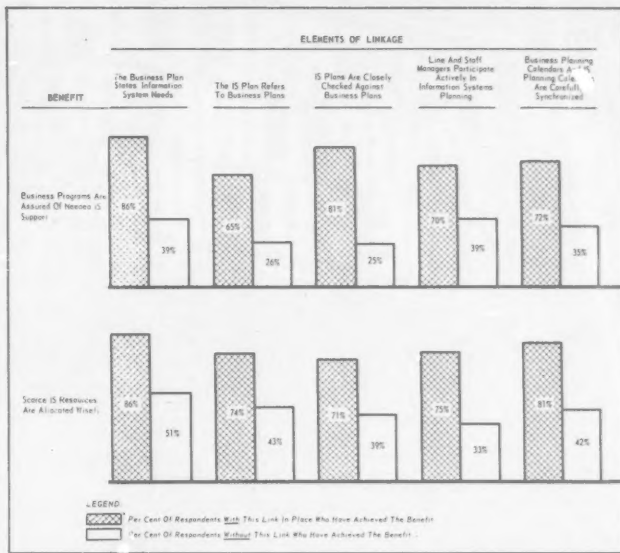


Figure 1

mation systems. Among surveyed companies whose overall business plans explicitly state information systems needs:

- Eighty-six percent said their business plans are assured of needed information systems support; only 39% of those who do not state information systems needs in their business plans made this claim.
- Eighty-six percent said their in-

formation systems resources are allocated wisely; only 51% of those who do not spell out information system needs agreed.

Ironically, computer and component manufacturers rank low in comparison to other industry groups in reporting benefits of information systems planning, Knutsen said. Chemical and petroleum industries, along with utilities, were found to

rank high in reporting successful information systems planning.

Success in planning for information systems is, surprisingly, unaffected by factors such as industry, methodology, size of enterprise and organizational arrangements, he said. What does make a difference is the enterprise's approach to business planning and efforts to establish links between the processes for business planning and those for information planning, according to the survey (story below).

"Planning for information systems is as much an art as a science," Knutsen said. "Managers who undertake information systems planning must take into account projections of business scenarios — for their companies, their industries and the economy as a whole — as well as possible changes in information systems technologies."

Information systems planners seem to have more difficulty in understanding the direction and requirements of their own companies than in coping with technological uncertainty. Time and staff constraints were also cited as problems.

A fair measurement of systems performance was the most sought-after benefit from information systems planning for 61% of the respondents, with 56% also looking for an avoidance of crash planning projects.

Copies of the survey report are available in limited quantities at no charge from CMP at 245 Park Ave., New York, N.Y. 10167

Poll Endorses Trio of Planning Characteristics

NEW YORK — The Cresap, McCormick and Paget, Inc. survey on planning practices designed to meet business objectives found that companies are relatively more successful in information systems planning when their business planning processes include these characteristics:

management commitment to planning, wide distribution of a business plan that is perceived to be realistic and use of that plan to monitor performance (Figure 2).

At least 61% of survey respondents who said their firms possess these characteristics were able to meet the

two top goals of information systems planning — assurance that business programs will receive needed information systems support and a wise allocation of scarce information systems resources.

Likewise, survey results showed that the planning success of firms who used any technique to forge links between business and information systems planning "dramatically surpassed" the achievement of those that did not (Figure 1). Linkage elements cited included:

- A business plan that states information systems needs.
- An information systems plan that refers to business plans.
- Information systems plans that are closely checked against business plans.
- Line and staff managers that actively participate in information systems planning.
- Synchronization of information systems and business planning calendars.

Respondents reported using one or more of the following planning methodologies: Critical Success Factors, an approach sponsored by MIT's Center for Information Systems Research; IBM's Business Systems Planning; internally developed methodologies; and "other" specific methodologies. Except for a slight edge in favor of the MIT methodology, the survey showed marginal dif-

ferences in planning success among the various planning methods.

With the exception of the success rates reported by the chemical, petroleum and combined utilities, there were no significant interindustry differences in planning success. Nor was any significant correlation found between spending levels and information systems planning practices.

Management Series To Begin May 3

FRAMINGHAM, Mass. — The second program of The Adalcar Group, Ltd.'s "Contemporary Management Training Series" will begin at the Hilton Inn here May 3.

Co-sponsored by the South Middlesex Area Chamber of Commerce and Adalcar, which is a human resources management firm, the program will run for four consecutive Tuesdays in May from 8:00 a.m. to 12:00 p.m. Using an interactive approach, the program is designed to help first-line supervisors and middle managers improve leadership skills by practicing techniques of changing employee behavior.

The registration fee for the four-week training series is \$300. Further information is available from The Adalcar Group at 561 Union Ave., Buckminster Place Extension, Framingham, Mass. 01701.

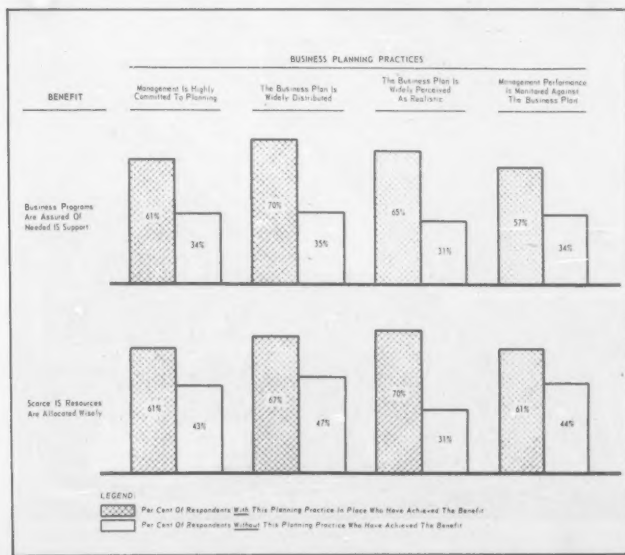


Figure 2



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development required for senior level, along with skills in coordinating efforts of a large project.

ASSOCIATE DATA COMMUNICATION SPECIALIST

3 years experience in data communications networking or a related computer field; familiarity with computer hardware and/or software systems with an understanding of transmission protocols preferred.

SR. PROGRAMMER ANALYST (Radio)

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\$27 Million Face-Lift Aids Bay Area Transit

OAKLAND, Calif. — The Bay Area Rapid Transit (Bart) is getting a \$27 million face-lift designed to replace its aging computerized control system by mid-1986.

Bart officials recently signed a \$2.5 million contract with Logica, Ltd., a British consulting firm that will help design new software and make recommendations for hardware replacements. The changes are meant to help increase by 50% the number of trains that can run at a time.

Dick Demko, executive manager of Bart's maintenance and engineering, said

the Xerox Corp. Sigma 2 that currently controls the trains is being replaced because of its limited capacity. "It's reliable and it does the job," he commented. "The problem is constraint. In order to get more trains running at once, we need a system with greater capacity."

In addition, the existing system is "hard to maintain and the parts are difficult to find," according to Frank Orem, manager of Bart's computer systems engineering. "And the software reflects the software technology of 10 or more years ago. We plan to redevelop it and reengineer it completely."

Bart's 71 miles of track currently accommodate about 200,000 passenger trips each day, with up to 43 trains running at once. When the new system is installed, Orem said, up to 75 cars can be on the tracks simultaneously, providing Bay Area residents with faster service.

In January 1986, Bart will begin a six-month cut-over period to the new system without interrupting regular service, Orem added.

The new computer system is part of a \$500 million refurbishment for Bart that includes the purchase of 150 new cars and construction of a new storage yard.

NU Program For Women

BOSTON — Northeastern University's Graduate School of Engineering is accepting applications for a new master's degree program in information systems designed for women with nontechnical backgrounds.

Scheduled to begin in Sept. 1983 with a class of approximately 25, the Women in Information Systems program is geared toward women who have bachelor's degrees and professional experience in fields other than computers, mathematics or engineering and who want to move into high technology industries. It is intended to train them for positions in software development and data base management in industries such as software manufacturing, banking, insurance and health care.

The program will involve six months of full-time study and then will move the students into full-time entry level positions in their new field. At that point, they will complete the master's degree requirements on a part-time basis, according to a Northeastern spokeswoman. The curriculum combines classroom study in math, computer languages and systems analysis with computer laboratory experience through cooperative education placements.

A corporate advisory council composed of private sector executives and professionals has been organized to review the curriculum and co-op job placements to assure their relevance to computer-oriented industries.

A course selection catalog and other information can be obtained from Paula Leventman, program director, Northeastern University, 360 Huntington Ave., Boston, Mass. 02115.

Revised Standard Issued by Ansi

NEW YORK — A revised standard that sets requirements for the physical and magnetic interchangeability of an unrecorded cartridge containing ¼-in. magnetic tape has recently been issued by the American National Standards Institute.

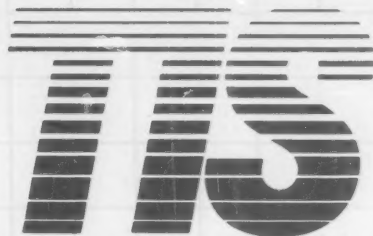
The standard, Ansi X3.55-1982, provides for interchangeability of the ¼-in. cartridge between information processing systems, communication systems and associated equipment, Ansi said.

It reportedly applies to the ¼-in. magnetic tape cartridge for digital recording that is commonly used with low-cost tape drives in many computer applications for peripheral data storage.

Besides enabling programmers and DP systems designers to write and recover data on tape with a high degree of reliability, this standard is also intended as a guide to media manufacturers in producing a ¼-in. cartridge, according to the vendor.

Further details on the standard can be obtained from Ansi headquarters located at 1430 Broadway, New York, N.Y. 10018.

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POS Terminal

FRAMINGHAM, Mass. — With minimal hardware upgrading, the data processing system at a fabric store here has expanded from payroll and accounts receivable to include almost all of the store's accounting.

One of the top 10 drapery and fabric stores in the U.S., The Fabric Place occupies a 38,000 sq-ft building. In addition to stocking 10,000 bolts of fabric, the store offers sewing accessories, a crafts department and a women's ready-to-wear department.

Three years ago, the store installed an NCR Corp. 8200 computer system with 80K bytes of main memory and 10M bytes of disk storage on the advice of consultants, Billie Jean Quist,

the store's DP manager, explained.

The retail operation used Data Terminal Systems, Inc. electronic point-of-sale (POS) terminals, but they could only record nine types of data for each transaction, Quist said.

In addition, the remaining sales information was on a separate manual accounting system. Accounts receivable information had to be entered into the computer manually, with the result that little detailed information was available on a timely basis.

As long as the store remained small, the information was sufficient, but business growth of about 40% in the past three years demanded that the store's accounting be automated. A year and a half ago, the store upgraded its 8200 to an 8230 with 96K bytes of main memory and 10M bytes more of disk storage, Quist explained.

Six months later, The Fabric Place purchased 13 NCR 2140 POS terminals, as well as two NCR Model 101 CRTs and one Model 1102-1000 CRT terminal for direct access to the computer's data. Early this year, the store obtained another 10M bytes of disk storage.

The POS terminals had two advantages, Quist noted. One advantage was to expand the data that could be collected from just nine categories to as many as 999 classifications. The other was to automate data entry — from people keying data from paper tapes to automatic entry from magnetic tape cassettes.

The terminals are set up in a master-satellite relationship. One of three POS terminals is equipped with a cassette handler so that data from all three terminals feeds into one cassette, which is picked up at the end of the day and read into the computer.

Five cassettes containing the sales information are automatically read into the computer daily in about 40 minutes, significantly reducing data entry time, Quist said.

"When the computer was first installed, the data entry and computer operation were decentralized," Quist said. "As each new application was added, the person who formerly handled that operation manually was assigned to handle it on the computer. This left the data pretty well scattered."

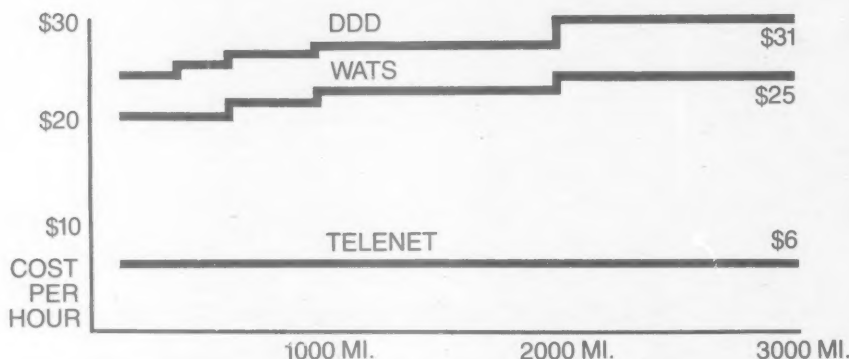
Need to Centralize

With the growing need for timely, consolidated information, Quist saw the need for centralization. Now, thanks to programming additions, all data relating to sales, returns, charges and other functions is summarized on the sales audit report.

Accounts receivable for the store's 2,000 charge accounts used to take about two hours of one person's time every day for posting. Now the update information comes in through the POS registers' cassette tapes as a by-product of the sales data.

Furthermore, management used to wait until the end of the month for an accounts receivable report. Today, month-to-date and year-to-date figures on any or all accounts are available within a short time, she said.

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Firm Blacks Out High Costs With Spreadsheet

BELLEVUE, Wash. — Under attack from consumer groups and governmental agencies alike, Puget Sound Power & Light Co. was fighting to keep its own bills down in order to keep its rate charges as low as possible.

To help accomplish this feat, the utility last year purchased a software system called Digicalc, an electronic spreadsheet-type financial management program developed by Why Systems, Inc. of Redmond, Wash.

After two in-house demonstrations, the utility company saw Digicalc's potential for its Rate Planning Department and decided to help Why Systems adapt the software to run on its Digital Equipment Corp. VAX-11/780 minicomputer, accord-

ing to Chuck Zappala of Puget Power's Information Systems Department.

Digicalc has since enabled the company to eliminate its time-share usage, which cost between \$10,000 and \$15,000 per year, and to perform virtually all calculations in the Rate Determination Department, in addition to handling traditional engineering, corporate planning and accounting applications, Zappala noted.

"A lot of people view rate structures as just the amount charged residential, industrial and commercial customers for electricity," he explained, "but it's much more than that. Puget Power schedules rates for all services — people who want

hookups, those who want overhead [power] converted to underground, those who want their own substations. Because of the various services, we have to have all kinds of rate structures."

Zappala said the system's built-in training mode and Help features have enabled nontechnical personnel all over the company utilize the system. Martin Thompson, director of rate planning and assistant controller/treasurer at Puget Power, is a good example.

"My projections for revenue requirements are now being put together on Digicalc... Where it previously took days to change some logic in the revenue requirements area, it now just takes half an hour or

so," Thompson said.

"We find we can turn things around quicker and do away with some of the overtime," he continued. As for the extra manpower, he said, "We're exploring ways to do federal income taxes with it, which is a very heavy work-sheet area."

Robert Yetter, a rate analyst at the utility, noted that "reports are readily available. We always had to format our exhibits and have them typed before. We really save time now because reports come right off the printer."

Yetter also pointed out that mistakes or changes are easily rectified with the software package. "It's simple to recompute a sheet and have Digicalc print another report," he said.

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QED Expands Course Centers

WELLESLEY, Mass. — QED Information Sciences, Inc. has expanded its network of regional learning centers and will offer over 100 courses through June, the company announced.

Courses will cover topics including systems development, systems management, structured methodology and quality assurance. Data base, data communications, cost benefit analysis, interpersonal communications skills and managing and motivating data processing professionals will also be discussed, a spokesman said.

Regional learning centers are located here and in New York, Philadelphia, Dallas, Seattle and Teaneck, N.J.

New course offerings include a personal business computer series and courses on decision support systems, strategic planning and business principles for the systems professional.

The company can be reached through P.O. Box 181, 180 Linden St., Wellesley, Mass. 02181.

Hopper to Keynote RTUA Conference

ST. LOUIS — Capt. Grace Murray Hopper, USNR, will be the luncheon speaker at the upcoming Recognition Technologies Users Association RTUA Summer Conference here on July 19.

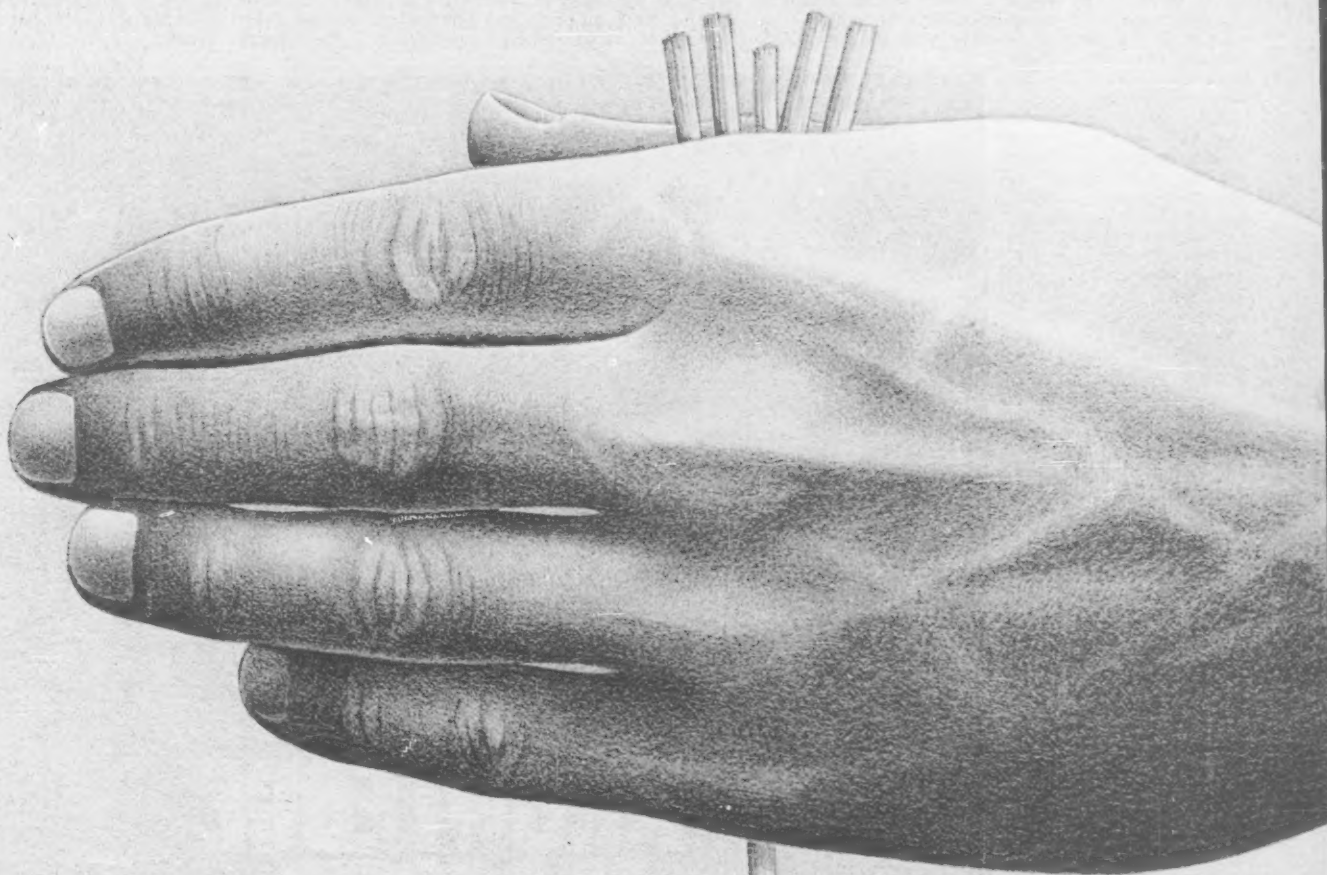
Captain Hopper will speak on "Automation: The Key to Information Processing Productivity." Other topics to be discussed at the meeting will include voice recognition, video imaging, robotics, optical disk, automated manufacturing and payment processing.

Special round-table workshops are slated for banking and government special interest groups, a conference spokesman said.

Registration for this conference costs \$280 for Recognition Technologies members and \$350 for non-members, according to the conference spokesman.

Further details may be obtained from conference headquarters through P.O. Box 2016, Manchester Center, Vt. 05255.

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Exec Lauds Benefits of Voice Store-and-Forward

By Jim Bartimo

CW Staff

MIAMI — Little more than half the business telephone calls made in the U.S. reach the desired person. By the same token, little more than half the intraoffice calls made are really only one-way communications — from the boss to an employee, for instance — and about the same number of business calls in the U.S. are made to retrieve information that can as easily be relayed later that day or the next day.

Those familiar with voice store-and-forward systems would recognize that these remarks are usually made as an introduction to a technology designed to store digitally, distribute and relay voice messages. Speaking here last week at Interface '83, Donald Van Doren relied on all of the above statistics to launch a session on the benefits of "Voice Mail: Digitized Store and Forward Voice."

Although a strong advocate of voice store-and-forward, Van Doren, president of the Randolph, N.J., consulting firm, Vanguard Communications, Inc., noted that the technology does have its limitations.

Speaking of its strong points, Van Doren said, "voice messaging is nonsimultaneous verbal communication." In addition to storing and distributing voice messages, this new technology can allow the recipient to hear messages at a time convenient to him and allow his phone to switch over to the message-taking system when it is in use.

But perhaps one of the

system's strongest points is that it can distribute messages and become a message center. "When [Trans World Airlines] almost had a strike, they set up one of these voice mail boxes for their employees to call into and find where management stood on the issues from day to day," he recalled.

However, the technology does have its problem areas. "The messages can't be too

long, and it's still difficult to scan the data base for more important messages, although there are vendors that are doing it," he said.

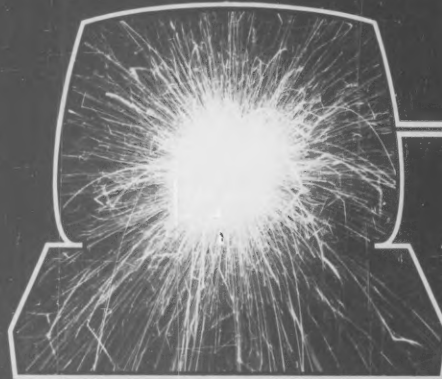
Running down the list of vendors that market voice store-and-forward systems — VMX, Inc., Wang Laboratories, Inc. and others — Van Doren remarked that even those in the business the longest have an installed base of only about 20 users.

He blamed the vendors' marketing methods — trying to cost-justify the systems to the users in terms of dollars rather than increased productivity — as the reason why these systems have not been placed in the hands of more users.

"The vendors have done you users a great disservice in the way they've marketed this product," he said. "Communications is a resource to

be managed, not a cost to be reduced."

If necessary, however, the user can cost-justify these systems in hard dollars, Van Doren said, by considering reduced telephone costs — messages are invariably shorter than telephone conversations — and by considering how many fewer memos — which cost time and money to write — are written.



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Despite High Costs Videoconferencing Attracts Growing Interest

By Jim Bartimo

CW Staff

MIAMI BEACH, Fla. — Twenty million meetings held in the U.S. every day could be affected by videoconferencing, according to Dennis Conroy, manager of consulting services for Coopers & Lybrand, who spoke at a panel discussion on teleconferencing at Interface '83

recently.

Conroy was joined on the panel by Lynn Fischer, marketing representative for American Satellite Co. of Rockville, Md., and Randy Goldfield, president of The Omni Group in New York.

Conroy pointed out a number of factors that contribute to the current interest in videoconferencing, the

process whereby people in different locations hold meetings through the use of video images transmitted over communications lines. The emphasis on white-collar productivity and the growing complexity of the business environment are important factors, as are the stress and cost of travel, he noted.

The advent of new, less expensive technology makes the idea of staying in the home office to conduct meetings even more attractive, Conroy said.

Although videoconferencing has been widely praised as a means to cut travel costs significantly, Conroy said that travel costs are actually only cut by 15% to 20%. Other

benefits, however, make videoconferencing a means for more effective meetings, he claimed. These include greater participation in meetings, since more people can be involved, and the improvement of communications within a company when, for instance, a new product is announced. In this case, it is easier to inform more people, especially those away from the home office, Conroy said.

Training can also be improved when classes are held via electronic meetings, Conroy explained.

Despite the high cost of videoconferencing, American Satellite's Fischer noted that the price could be absorbed by companies that already have high operating costs. For instance, Boeing Co., Inc. completed work on its new 757 jet 30 days early through the use of videoconferencing. The company did not worry about the high cost of this new method of conducting meetings because "that 30 days is worth millions of dollars to them," Fischer said.

There are two methods that a company getting started in this new area can adopt. One is to "plunge right in," the other is to take the gradual approach, Conroy said. "You should take the plunge approach if your company is decentralized, your senior management has a commitment to videoconferencing and if management wants to raise its image as [an] innovator," he advised. But he also warned that the videoconference planner should take the gradual approach if his company's characteristics are just the opposite.



CW Photo by J. Bartimo

Dennis Conroy

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And the need was pressing. But before deciding on the system, the Air Force decided on something else; when the final

decision was made, they wanted to hit the ground running.

So rather than make judgements on proposals alone, the Air Force decided to make judgements based on the actual ability of commercially available systems to meet their tough demands, now and for the future. In other words, no blue sky.

They pitted the finalists against each other in a "Compute-off", a head-to-head competition lasting over two years and encompassing over 20,000 individual tests.

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Annual Growth of 30% Expected Until '88 High Growth Seen for Commercial Satellites

By Jim Bartimo

CW Staff

MIAMI BEACH, Fla. — The first U.S. commercial satellite was launched in the early 1960s and by 1974 there were still only four in orbit. But by 1984 there are expected to be more than 45 satellites above the earth used for telecommunications, data communications and several other applications.

There will be so many satellites, in fact, that there is not enough room for all of them in that section of space known as geosynchronous orbit, according to George Knouse, manager of the National Aeronautics and Space Administration's (Nasa) mobile satellite program.

Knouse and other satellite experts recently made some predictions about this technology's future at Interface '83 here.

"This market is expected to grow by 30% per year for the next five years, and the cost of transmission is expected to go down," according to A.L. Parker, president of the Ford Aerospace Satellite Services Corp. of Detroit.

DPMA to Host OA Conference

STERLING HEIGHTS, Mich. — The Data Processing Management Association (DPMA) Education Foundation is sponsoring a three-day office automation seminar in several cities during April, May and June.

Called: "Office Automation — From the Tee to Green," the seminar is designed for information systems, office systems and administrative support personnel. The course will address office system technologies, communications techniques, how to improve office productivity through office automation and an analysis of the office automation life cycle, the organization said.

The three-day conference costs \$385 for DPMA members and is offered April 20-22 in Philadelphia, May 11-13 in St. Louis, May 18-20 in Atlanta, June 8-10 in Cleveland and June 15-17 in Los Angeles. More information is available from DPMA/EF Conferences, 14536 Island Drive, Sterling Heights, Mich. 48078.

CDRS Users Group To Hold First Meet

ROSEMONT, Ill. — Comdisco Disaster Recovery Services, Inc. (CDRS) has announced that it will hold its first users group convention May 12-13 at the CDRS Chicago-area facility in Wood Dale, Ill.

The two-day conference will feature user discussions on topics such as "Sharing Special Devices," "Auditing Disaster Recovery Plans," "Mini Outages and Area-Wide Disasters," "Disaster Recovery Insurance," "Communications Backup" and "Disaster Recovery Testing."

Keynote speaker for the conference will be Gerald Isaacson, director of the Computer Security Institute. CDRS is located at 6400 Shafer Court, Rosemont, Ill. 60018.

These satellites are expected to be used predominantly for telecommunications and entertainment such as television, but new applications such as cellular radio are also expected to pay part of the freight for these expensive relay stations, Parker said. "We expect to see high growth in private networks and publication text distribution as in the case of USA Today," he said.

But another satellite expert, Lewis S. Pilcher, pointed out: "Satellites are put up there with one idea in mind and end up doing a completely different job." Pilcher is assistant manager in the Los Angeles-based space and communications group of

Hughes Aircraft Co.

For instance, satellite companies never expected to handle television, and now this is one of their largest sources of income, he said.

Calling today's satellites "nothing more than a microwave link like the ones provided by the phone company," Pilcher predicted that satellites in the 1990s could perform medium-speed digital processing to become "a switch in the sky." This on-board processing of information would simplify receiving a satellite message and improve connectivity, he said.

Pilcher also said that future satellites will need improved orbit spacing and will almost always be placed

in orbit by Nasa's Space Shuttle. Their applications will impinge upon the growing needs of users.

There is one school of thought that believes tomorrow's satellites will be carried in groups on large platforms because no one rocket could launch them one at a time, Pilcher said. "But we're looking at cluster satellites that would orbit without a platform and communicate with each other over radio waves."

As an example of a future satellite, Parker described one of Ford's that is now in the planning stages — Fordsat. "Fordsat will be the largest communications satellite yet launched," he said.

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Robotics Research Center Logs Decade Mark



URI staffers Greg Stump (l.) and Dave Martino prepare the Puma robot.

By Katherine Hafner
CW Staff

KINGSTON, R.I. — It is a short drive down a winding country road, 10 minutes removed from Rhode Island's Rt. 1 into rural silence, a good two hours from the scream of technological activity on Boston's Rt. 128.

The Robotics Research Center at the University of Rhode Island sits inconspicuously inside a two-story red-brick building on the northern edge of the campus, where engineers have spent the past decade developing one of the most well-endowed robotics research centers in the nation.

With an annual budget close to \$1.25 million, the URI robotics team enjoys the title of the National Science Foundation's (NSF) Robotics Research Center.

It started in 1973, when two engineering professors, John Birk and Robert Kelley, began work on the idea of a vision system for robots; by 1977, URI had become the first in the world to solve "the problem of how to get a robot to single out and pick up a casting from a pile of unoriented objects, using steel claws for fingers."

Today the center receives support from the National Science Foundation and more than 30 private companies. Some of the corporations that have invested their money in the URI robotics program include Bendix Corp.; Chesebrough Pond's, Inc.; General Motors Corp.; Honeywell, Inc.; Westinghouse Corp.; and Owens-Corning Fiberglass. By the time the NSF grant expires in 1986, URI hopes to have 60 companies participating in the program.

At the Robotics Research Center, seven full-time faculty members, six engineers and technicians, 18 graduate students and 11 undergraduates work with two Puma robots, manufactured by Unimation, Inc., and one Asea, Inc. robot for the university's

research in vision, sensing and integrated robotics systems.

The two black Puma robots, costing \$40,000 apiece, are the pulse of URI's vision work. They sit below two overhead Hitachi Ltd. cameras and are linked to adjacent Grinnell Systems Corp. GMR-27 and 270 raster graphics display generators, which are controlled by a Digital Equipment Corp. VAX-11/780 superminicomputer and a Texas Instruments, Inc. 990 minicomputer.

Operating under their own language, Val, the robots are told what point in space they should go to and, with sensor information relayed back to the computer, can adjust to new coordinates on a matrix.

URI uses a 256- by 256-pixel, 8-bit image array, which consumes 64K bytes of storage when the image from the cameras enters the Grinnell system at 30 frames per second, according to Dave Martino, the staff engineer.

Bin Pickers

In 1980, URI developed the first "gray-level" bin-picking system, more precise than its binary predecessor, which could only see black and white. The gray-level vision can also discern shades between the two extremes, making for more exact performance, Martino said.

"Perfect" robot vision, comparable to that of a human, remains at least another decade off, Martino said. "It depends on the advances made in the computer industry."

In the next building stands a much larger, bright orange Asea robot, which is used for plasma arc cleaning of casting. The Asea, which costs \$120,000, is manufactured in Sweden and comes with its own computerized control system, containing a sensory feedback to tell the robot how far away it is from an object. Torch in hand, in one sweeping gesture the robot swings its huge crane-like arm toward a piece of casting; when it reaches a certain distance from the object, the torch ignites, sears through the metal, then extinguishes itself.

The URI group delves into the various applications the Asea can be put to.

The Asea robot is large enough, for instance, to perform some of the more unsavory tasks in the automotive industry, such as welding and spray painting, the URI group explained.

Nancy Harrison, a research assistant with the program, considers URI unique because the university works on generic, rather than specific, problems in robotics. Companies that help fund the program describe a general area they would like to see addressed, and the university goes to work.

"For example, a company doesn't come to us and say 'we want to inspect Campbell's soup cans,'" Harrison said, "but we will work on, say, color recognition of cylindrical objects that would have several applications."

Integrated robotics, Martino said, utilizes both vision and sensing in performing complex tasks.

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Shared Network Expands Bank's Boundaries

MILWAUKEE — Looking after the processing needs of a single bank is complicated work. However, when those needs are stretched among 135 banks and the processing load includes nearly 11.5 million accounts and about a million transactions a day, that work can go beyond the limits of even the most sophisticated DP shops.

M&I Marshall & Ilsley Bank, however, is doing just that, using a large mainframe processor tied to a computer network. The bank is Milwaukee's second largest financial institution and the flagship of the statewide group of 26 banks in Wisconsin. It also works with and provides DP services to more than 180 correspondent banks.

In addition, the bank's on-line system software (with off-line processing) has been purchased and installed to run on the in-house computers of eight major financial institutions. Revenues from the combined sales and service from the system exceed \$6 million a year.

System Configuration

M&I runs its Deposit Management System on an IBM 3081 processor located at the bank's main data center near Milwaukee. This is the anchor of the computerized network, linking hundreds of visual display and printer terminals; teller terminals; Tyme, the statewide automated teller machine (ATM) network; and magnetic ink character recognition (Micr) data capture systems.

Designed to process and report deposit activity on a daily cycle, the system operates in the IMS DB/DC environment. Through IMS, the deposit system interfaces with other application systems such as central information file, electronic funds transfer, profitability analysis, financial control and the Automated Clearing House.

M&I has created a shared computer communications network that supports all the service bank applications, including the Deposit Management System. The network embraces the main data center with its 3081 and a backup IBM 3033 computer, numerous I/O devices, three smaller data centers and remote CRT, printer, teller and ATM terminals.

The network is configured so that any terminal can share a single telephone line, which helps hold costs down. IBM's System Network Architecture techniques isolate, identify and correct any malfunction and help keep the network up and running at all times, Jim Dempster, deposit systems manager, said.

The network has long since stretched beyond its initial Wisconsin boundaries into a neighboring state and is now spreading even further afield as M&I markets its system on a nationwide basis. Software marketing is handled by ROI Consultants in Berkeley, Calif.

Bank officials stress the computer system's "contribution to operating productivity and management control" in deposit management.

"Deposit management today involves a growing variety of product types, and both the dynamics and complexities of this basic financial activity will almost certainly intensify as the financial community continues to move toward deregulation," Dennis Kuester, bank vice-president, said. This is why the bank developed a total deposit system capable of handling any type of interest-bearing or general-purpose transaction account, he added.

User-Specified Options

The system's flexibility allows participating institutions to specify their own accounting, reporting and control options to suit bank operations and to make modifications required by new regulations.

"We provide user-defined options at bank, branch, product and individual account levels," Dempster said. Up to 1,000 in each category of

user-defined interest plans, service charge routines and transaction codes are available.

Information is maintained daily through on-line and off-line transaction processing and is reported on paper or microfiche and on computer terminal screens. "What the user wants, the user gets," Dempster said. As a result, deposit transactions originate from a number of sources, including IBM's 3600 on-line teller terminal systems, which handle a range of window transactions, direct deposit accounts and savings, among others.

Many of the user banks have check-processing systems in place, and the Micr data captured during the processing runs is transmitted to

the M&I data center. Other users who are close enough send some transactions via courier.

When a bank signs onto the system, the M&I data center sets up separate record segments — called Bank Control Data Base — on the computer-maintained central data base for both the user bank and its deposit account customers. This data base contains all of the user bank's processing parameters.

Each user bank's Account Master Data Base is maintained on-line and is updated daily as transactions are processed. Also offered on the system are many managerial-type reports, although a growing trend is toward reduction of paper output in favor of on-line terminal inquiry.

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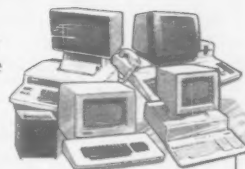
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Food Chain MIS Managers Cook Up Info Center

LA MIRADA, Calif. — Management information systems (MIS) executives at Denny's Inc., a retail food chain, are placing increasing emphasis on fourth-generation, nonprocedural software as they develop the information center concept within their company.

A host of new applications have been introduced via the information center and the DP technicians are utilizing the Focus package from Information Builders, Inc. as one tool to help serve the information needs of their users.

One of the most widespread applications at Denny's is in the area of file conversion. Using Focus, sales files are adjusted and an analysis made of Denny's sales prices versus competitors in a particular region. Focus is also used to collect weekly point-of-sale information in selected markets and to track local sales to determine the effectiveness of advertising campaigns, according to a Denny's spokesman.

In addition, the software plays a big part in the growth of personal computers as Denny's vision of the information center expands. Currently, the language is used to extract data from an IBM 3031 host and download it onto Apple Computer, Inc. Apple II and Apple III micros. The company plans to add several IBM Personal Computers this year to aid such local processing.

Providing Tools

"We see our role in the information center as one of providing a lot of tools that will allow users easier access to data within the organization, and Focus plays a big part in such an operation," explained Evan Wride, MIS manager.

Another area in which the company uses the software extensively involves inquiry applications, where a user needs access to existing data files. Such files might be current production files or specific Focus files

created via a file conversion process.

These applications are split into three areas within the company:

- A formatted menu approach where the user needs to produce a report and is guided by the computer as it prompts him on the parameters of the inquiry to be used.
- A semistructured approach to report generation. The user can input unstructured parameter variables, which allow more flexibility in the inquiry. However, the user needs at least some knowledge of Focus syntax.
- A nonformatted application where the user has a blank screen and enters his Focus commands and parameters without any prompting from the computer.

Denny's DP managers also viewed the software as a decision support system tool, and it is currently being used to create subsystems requiring file manipulation and calculation.

"For example, using Focus, we can extract data from different production systems and build a decision support data base that integrates data from various sources into one place for analysis," Catherine Eldredge, project manager, explained.

Denny's management was able to compare the plans of individual restaurants for the next fiscal year with performance in previous years. Such an exercise is designed to ensure as much accuracy as possible in planning and forecasting and to make adjustments to existing plans where

they are needed.

Focus is also being used occasionally to code applications instead of the traditional Cobol, Fortran or Basic structured languages. The company used Focus to code prototype systems that need to be created quickly, but which require adjusting before being written in one of the structured languages. The creation of an incentive compensation system is an example of such an application at Denny's.

However, company MIS executives stressed the need for balance. There are cases, they warned, where Focus is not the best language to use. Without proper documentation and system development, it can be injurious to the integrity of the data.

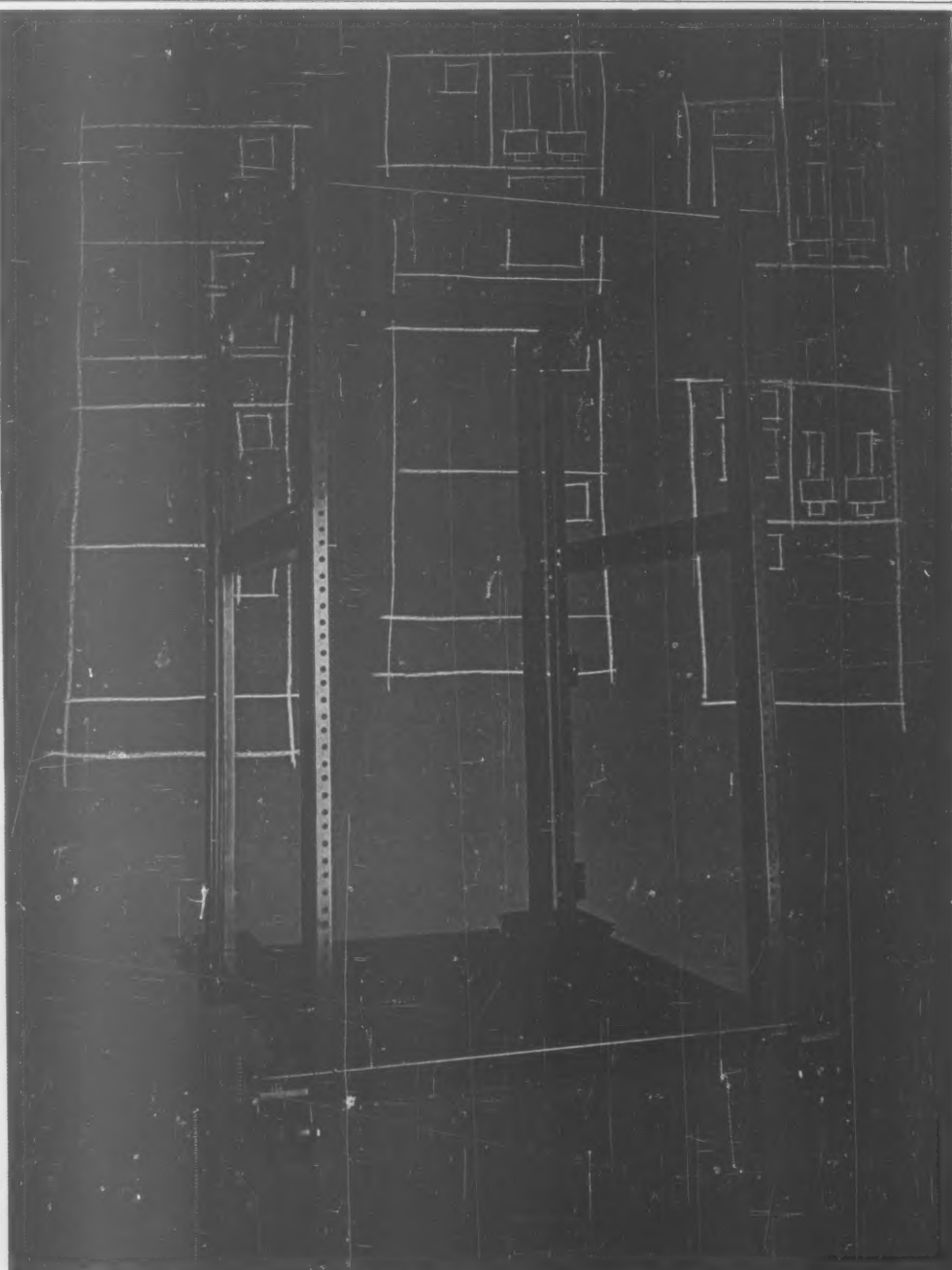
IIT Conference Set for June 23-25

CHICAGO — A three-day conference at the Illinois Institute of Technology (IIT) here on June 23-25 will highlight technological advances in computer-supported design processes.

Sponsored by IIT's Institute of Design and Office of Advanced Studies Programs, the conference will include addresses by academicians and professionals from the fields of human factors design, architecture, planning, computer science, engineering, product and visual design, with 17 papers presented in all a spokesman said.

Keynote speaker will be Hans Mark, deputy administrator of the National Aeronautics and Space Administration, who will speak on computers and the exploration of space.

Registration for the conference is \$325, with student and faculty discounts. More information is available from Illinois Institute of Technology, Office of the Manager of Continuing Professional Education, Chicago, Ill. 60616.



Gives User the Advantage Know Areas of Negotiation in Contract: Lawyer

By Bob Johnson

CW New York Bureau

NEW YORK — The most important ability a user can have in negotiating a software contract is to know where the "hard and soft points," are, or simply, know what can be negotiated and what cannot, an attorney told attendees at a conference here recently.

Esther Schacter, a New York lawyer specializing in the computer industry, stressed that having a sensitivity to what can be bargained for in a contract will give a user a tremendous advantage and may very well save a DPer from later contractual headaches.

The attorney pointed out several major areas of a contract that users should take particular notice of when planning to accept products or services from vendors. The two most important, according to Schacter, are the areas of "Warranty of Performance" and "Property Rights."

In performance warranties, Schacter said that one negotiable point includes the length of the warranty. "You have to know how long a period the warranty is good for. Years ago one-year warranties from vendors were common. Now, however, they are cutting down, and it is not unlikely to see warranties lasting only 30 days," she warned. Schacter

added that the user must be aware of when the warranty actually begins — including specific times such as upon delivery, upon installation or upon acceptance. "Caution must be observed, but remember, these points are negotiable," she said.

Another question about warranties includes "reproducible errors," Schacter stated. She explained that this usually means that if a system or product error cannot be reproduced when the vendor shows up, then it is not responsible for correcting it. Specifications, or the system design, must be incorporated in the contract, the attorney said, to measure against what an error really is so there will

be no question as to whether it was the fault of the vendor or the user.

Schacter also pointed out that users must state the business hours they will need for vendor service. She advised the talk's attendees to negotiate for times when their shops need to operate, taking into consideration weekends and holidays. Also, travel and subsequent costs have to be negotiated. She said that in most situations, vendors should do the fixing at their own costs.

The second major area of negotiation for users to understand is that of property rights. Schacter said that it is becoming increasingly important in the industry for users to know if the company they are dealing with actually owns, develops, or has the right to contract for the software they want. "The last thing you want as a user is to get embroiled in a legal battle as the third party, even if you're indemnified," the attorney cautioned.

Software property rights mean title or ownership, Schacter explained. She said that unlike hardware, where there is a tangible item, software rights usually translate as trade secrets — secrets which, the lawyer said, vendors will protect "vehemently."

"The vendor has a host of property rights. And he will try to carve out new products from the product he has contracted with you for. This is competitive DP and could or could not hurt the user. This also should be negotiated," she said.

Schacter pointed out that users also have property rights concerning their already established systems. She said that a confidentiality clause should be in the contract protecting the user if the vendor needs to get into his system. "The vendor should agree to keeping the user's trade secrets confidential and also give any used data back," the attorney said.

The lawyer warned that there are a variety of ways in which vendors will try to get out of their warranty obligations. A common example is that of modified software. She explained that if users change a software product at all, in most cases this will void the warranty. "If users intend to modify the software they contract for they have to try and negotiate to get the privilege. However, most vendors will not agree to it," she said.

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Benefit Group Keeps Abreast With Package

MINNEAPOLIS — In the 1970s, Lutheran Brotherhood, a fraternal benefit society, foresaw "dramatic changes" in the insurance industry and set out to meet them head on.

"Providing quality insurance products and excellent service to our members is a primary corporate objective," said Clair Strommen, president of the 900,000-member organization.

The company's software system for administering the insurance program, installed in 1964, was becoming obsolete because of its inflexibility, according to Don Hedding, vice-president of management information systems (MIS). Hedding said that procedures such as adding new products and revising the company

rate book were increasingly bogged down because of the difficulty in incorporating changes into the system.

Because of the "intense effort" required of the MIS department when introducing a new product, the company could only plan to start one new product every two or three years. Similarly, the rate book could be revised only once every five years, Hedding added.

In 1978, the brotherhood hired Strong, Wishart and Associates, Inc. to study the company's MIS operation and explore possible solutions to this problem.

"The primary objective was to find a system that was flexible and could easily handle new products," noted Bob Gandrud, vice-president of mar-

keting and insurance operations.

After several months of evaluating different systems, the company selected Informatics General Corp.'s Lifecomm system, a software package for administering life and health insurance, as well as annuities.

The first phase of Lifecomm, the Underwriting and Issue System, was installed in July 1979, and the rest of the system — including the conversion of 1,130,000 policies — was completed Jan. 1, 1981.

Not only did the installation go smoothly, Hedding commented, but the conversion to Lifecomm has had a continued positive effect.

"We have been able to rearrange the organization so that it functions more efficiently," Hedding main-

tained. "We're processing a higher volume and providing better service with less staff. And productivity has increased dramatically."

Some of the insurance products Lutheran Brotherhood now offers to its members and their beneficiaries include Major Medical insurance, nonsmoker plans, flexible premium annuities and universal life insurance.

In addition, Hedding said, the role of MIS has also changed since Lifecomm came to Lutheran Brotherhood. The department now reports to the marketing organization, providing service to the entire company, he said. It also plays a major role in top management and in the long-range planning process of the company.

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Free Brochures

SUDBURY, Mass. — Technology and Business Communications, Inc. is offering a free background report on the computer-aided design and manufacturing (CAD/CAM) industry.

The publication looks at the 1983 CAD/CAM market including applications and trends, the issues surrounding low-cost CAD/CAM equipment and high-end integrated systems, standardization efforts and a directory of suppliers, the firm said.

The publication is offered for 54 cents for postage from Technology and Business Communications, Inc., P.O. Box 392, Sudbury, Mass. 01776.

MILPITAS, Calif. — "Synapse Transaction Processing. System Overview" is an 82-page book illustrating how a system designer may accelerate development of a high-performance, fault-tolerant on-line transaction processing system. Discussed are:

- Automating integrity/recovery.
- Obtaining relational data base management system performance.
- Transparent expansion of a system on-line.

The book has a complete index and a comprehensive management-level introduction for the nontechnical manager. The technical overview section is an adequate overview for the technical manager and staff.

It is available from Synapse Computer Corp., Corporate Communications Department, 801 Buckeye Court, Milpitas, Calif. 95035.

NEW YORK — Price Waterhouse is offering a booklet entitled "Microcomputers: Their Use and Misuse in Your Business." It is designed to help businesses develop and implement productive and cost-effective microcomputer systems.

The Price Waterhouse booklet offers practical advice on reviewing, acquiring, installing and testing hardware and software; establishing internal control procedures designed to prevent unauthorized access, protect financial data and preserve detailed records; protecting the central data base (mainframe) from unauthorized micro user access; documenting microcomputer applications; and training employees.

A free copy is available from Price Waterhouse at 1251 Ave. of the Americas, New York, N.Y. 10020.

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Continuous Computing Essential

Truckers Cash In With Disbursement System

DALLAS — How does a long-haul trucker stay in the money while on the road? One way is to use one of several nationwide computer-based cash disbursement systems.

And continuous computing is essential to the operation of the Instacom Corp. cash disbursement firm here, according to Susie Kennedy, director of DP.

When truckers go out on a trip, they are generally given only a limited amount of cash to carry en route. With cash disbursement services, a driver who needs additional money can pull into a truck stop and write a draft for cash, a firm spokesman explained.

The trucking company receives printed transaction records with a coded number indicating the amount of credit extended. This number is then given to a driver along with a book of drafts.

When a trucker writes a draft for cash, the cashier at the truck stop calls Instacom, which checks the trucker's coded number against the draft amount and then guarantees the funds. If the amount surpasses the customer's credit limit, a flag appears on the Instacom operator's monitor and a supervisor is called.

Because truckers write their drafts on Instacom's account, when a draft is verified as good, the money trans-

fer company assumes responsibility for payment. Consequently, their computer system's continuous availability becomes critical.

"Instacom processes money transactions everywhere in the U.S. 24 hours a day, seven days a week, so it's essential that our computer system be completely reliable, operate continuously and allow us to perform maintenance or back up customer files on-line," Kennedy noted. Instacom is using two communicating Tandem Computer, Inc. Nonstop systems featuring a fault-tolerant design to keep them working even if a major component fails. "We chose Tandem over several competitors, in-

cluding IBM and Digital Equipment Corp., because it offered the only computer with 24-hour reliability," Kennedy said.

The company's Nonstop I and Nonstop II systems consist of six computer processors, each with its own work load, but capable of taking over the work load of any other processor that fails.

Four of the processors have 768K bytes of memory and two were recently upgraded to 2M bytes each. In addition, the Nonstop I will be upgraded to a Nonstop II in May. The system features a relational data base in which information is organized in tables.

Former System Inefficient

Prior to 1979, Instacom ran operations on a Four Phase Computer Systems, Inc. Model 490 minicomputer that became overloaded as business grew. The company also had to take the computer down for 45 minutes each night to back up disk packs in case the system failed, a procedure that was inefficient and caused delay in its money transfer.

Since installing the Tandem equipment, the firm reportedly has saved about \$2,000/mo because all backups are done on-line. "Even when we moved to a new building, the computer was down only 21 minutes," Kennedy noted. "We had no problems getting the system back on-line right away at the new location," he said.

Instacom, which transferred more than \$600 million during 1981, processes up to 16,000 calls per day on the Nonstop system and currently stores account information on approximately 1,000 trucking firms in its data base.

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AI Conference Set for Aug. 22

MENLO PARK, Calif. — The National Conference on Artificial Intelligence, sponsored by the American Association for Artificial Intelligence (AAAI), will be held Aug. 22-26 in Washington, D.C., at the Washington Hilton Hotel.

A tutorial program will be presented. Topics in the past have included expert systems, robotics, natural language and an introductory tutorial on artificial intelligence.

In addition, a week-long research and development exhibit program will present the latest in industrial artificial intelligence hardware and software as well as new service developments of interest to the artificial intelligence community.

Leading publishers reportedly will present a variety of titles in computer science, artificial intelligence, cognitive science, linguistics and other allied disciplines.

Conference registration before July 15 costs \$90 for AAAI members and \$125 for nonmembers. After that date, fees are \$115 for members and \$150 for nonmembers. More information is available from AAAI, 445 Burgess Drive, Menlo Park, Calif. 94025.

Calendar

Week of April 10

April 12, New York — **CICS/VS Users Group**. Contact: Teltech Systems, Inc., 548 Fifth Ave., New York, N.Y. 10017.

Week of April 17

April 18-19, Washington, D.C. — **User-Friendly Information Delivery**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-19, Los Angeles — **Data Communications: Advanced Concepts and Network Management**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, New York — **Distributed Systems Design: Micros to Mainframes**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, New York — **DP Operations Today: Effective Scheduling and Console Operations**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, San Francisco — **Computer Operations Management: Effective Techniques**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, San Francisco — **Computer Performance Measurement and Capacity Planning: Tools and Techniques**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, San Francisco — **Data Processing: Fundamental Concepts**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, Washington, D.C. — **Microcomputer Systems: A Guide to Selection and Application**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-20, Washington, D.C. — **Office Automation: Strategic Planning**. Contact: Seminar Department, Datapro Research Corp., 1805 Underwood Blvd., Delran, N.J. 08075.

April 18-21, Washington, D.C. — **Planning Strategies for Implementing Telecommunications Systems**. Contact: Continuing Engineering Education, George Washington University, Washington, D.C. 20052.

April 18-22, Philadelphia — **Systems Analysis Workshop**. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

April 18-22, New York — **Structured Analysis Workshop**. Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011. Also being held in Los Angeles.

April 18-22, Miami — **Structured Analysis/Design Workshop**. Contact: Structured Methods, Inc., 7 W. 18th St., New York, N.Y. 10011.

April 18-22, Arlington, Texas — **Systems Design Workshop**. Contact: QED Information Sciences, Inc., QED Plaza, P.O. Box 181, Wellesley, Mass. 02181.

April 19, Rochester, N.Y. — **A Working Introduction to APL**. Contact: I.P. Sharp Associates, 1200 First

Federal Plaza, Rochester, N.Y. 14614.

April 19-22, Washington, D.C. — **Hands-On Unix Workshop**. Contact: Integrated Computer Systems, 3304 Pico Blvd., P.O. Box 5339, Santa Monica, Calif. 90405.

April 19-22, Washington D.C. — **Data Communications: Components, Systems and Networks**. Contact: Registrar, Institute for Advanced Technology, 6003 Executive Blvd., Rockville, Md. 20852.

April 21-22, Washington, D.C. — **Software: A Legal Briefing for DP Professionals**. Contact: American Institute for Professional Education, Carnegie Building, 100 Kings Road, Madison, Wis. 07940.

April 21-22, Washington, D.C. — **IMS/VS Data Communications Pro-**

gramming. Contact: Data Base Management, Inc., 1075 Tolland Tnpk., Manchester, Conn. 06040.

April 21-22, St. Petersburg Beach, Fla. — **Local-Area Networks '83**. Contact: Carol Sapchin, Account Representative, Frost & Sullivan, Inc., 106 Fulton St., New York, N.Y. 10038.

April 21-22, Washington, D.C. — **Broadband Local Networks**. Contact: Architecture Technology Corp., P.O. Box 24344, Minneapolis, Minn. 55424.

April 21-24, Virginia Beach, Va. — **Virginia/Carolinas Computer Show**. Contact: Dee Harris, Computer Expositions, Inc., P.O. Box 3315, Annapolis, Md. 21403.

April 22, San Francisco — **IBM**

OS/VS JCL and Utilities. Contact: Arnold Roberts, ADC Associates, 960 San Antonio Road, Palo Alto, Calif. 94303.

April 23-24, Lansing, Mich. — **1983 Inter-Association Computer Show**. Contact: Michigan Retail Hardware Association, P.O. Box 30085, Lansing, Mich. 48909.

Week of April 24

April 24-27, Boston — **Association for Systems Management (ASM) Annual Conference**. Contact: Richard B. McCaffrey, ASM, 24587 Bagley Road, Cleveland, Ohio 44138.

April 24-29, Montreal — **1983 Hewlett-Packard HP 3000 International Users Group Conference**. (Continued on Page 42)

Real Time Financial Software Or A Dinosaur In Disguise?

Try finding an ad for financial software without a photo of a CRT terminal. It's almost impossible. Incredibly, behind most of these terminals lurks an outdated batch system. Disguised with a few "online" add-ons to look like real time software.

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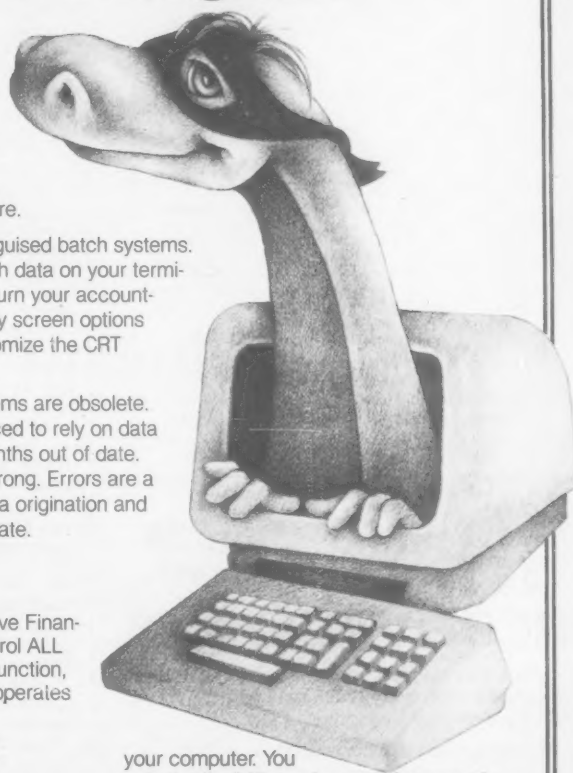
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Calendar

(Continued from Page 41)
Contact: Leslie Nicholson, HP 3000 International Users Group, Inc., 289 S. San Antonio Road, Los Altos, Calif. 94022.

April 25, New York — **Generalized Audit Retrieval Software Packages.** Contact: John Ainsworth, EDP Auditors Association, Inc., G.P.O. Box 1279, New York, N.Y. 10116.

April 25-26, Summit, N.J. — **IMS Data Communications.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

April 25-26, San Diego — **Digital Communications Seminar.** Contact: Technology Transfer Society Seminars, Department Digcom, P.O. Box 3608, Torrance, Calif. 90510.

April 25-27, Indianapolis — **Network Communications Protocols.** Contact: Center for Advanced Professional Education, Inc., 11928 N. Earlam, Orange, Calif. 92696.

April 25-27, New York — **DL/I Application Programming.** Contact: Rosa Roseto, Comped, 1133 Ave. of the Americas, New York, N.Y. 10036.

April 25-27, Boston — **Theory of Computing.** Contact: Association for Computing Machinery, 11 W. 42nd St., New York, N.Y. 10036.

April 25-27, Oakland, Calif. — **1983 Symposium on Security and Privacy.** Contact: Dorothy Denning, Computer Science Department, Purdue University, W. Lafayette, Ind. 47907.

April 25-27, Washington, D.C. — **Introduction to Unix: A Hands-On Workshop.** Contact: Institute for Advanced Professional Studies, 55 Wheeler St., Cambridge, Mass. 02138.

April 25-27, Los Angeles — **Relational Data Base.** Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

April 25-27, Boston — **IBM MVS I/O Configuration Management.** Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

April 25-28, New York — **CICS/VS Testing and Debugging.** Contact: Rosa Roseto, Comped, 1133 Ave. of the Americas, New York, N.Y. 10036.

April 25-29, Summit, N.J. — **CICS/VS Command Level Programming.** Contact: Chubb Advanced Training Center, 480 Morris Ave., Summit, N.J. 07901.

April 25-29, Columbia, Md. — **JCL/OS Utilities.** Contact: Amdahl Education Center, M/S 302, 1250 E. Arques Ave., Sunnyvale, Calif. 94086.

April 25-29, Chicago — **James Martin Seminar: Productivity.** Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.

April 25 to May 6, Santa Clara, Calif. — **MVS System Fundamentals.** Contact: Amdahl Education Center, M/S 302, 1250 E. Arques Ave., Sunnyvale, Calif. 94086.

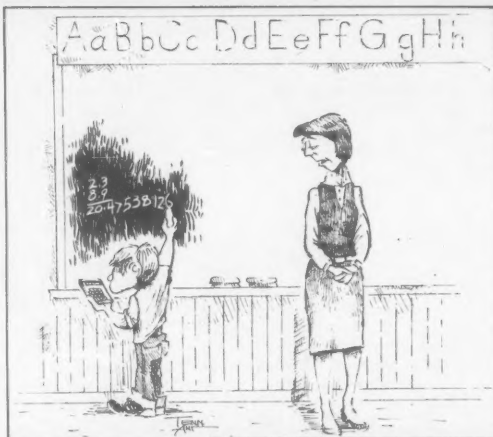
April 26-28, New York — **Optical Storage Technology Management.** Contact: Technology Opportunity Conference, P.O. Box 14817, San Francisco, Calif. 94114.

April 27-28, Washington, D.C. — **Unix System Administration.** Contact: Institute for Advanced Professional Studies, 55 Wheeler St., Cambridge, Mass. 02138.

Week of May 1

May 2-4, Boston — **Network Communications Protocols.** Contact: Center for Advanced Professional Education, Inc., 11928 N. Earlam, Orange, Calif. 92696.

May 2-6, Washington, D.C. — **James Martin Seminar: Productivity.** Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402.



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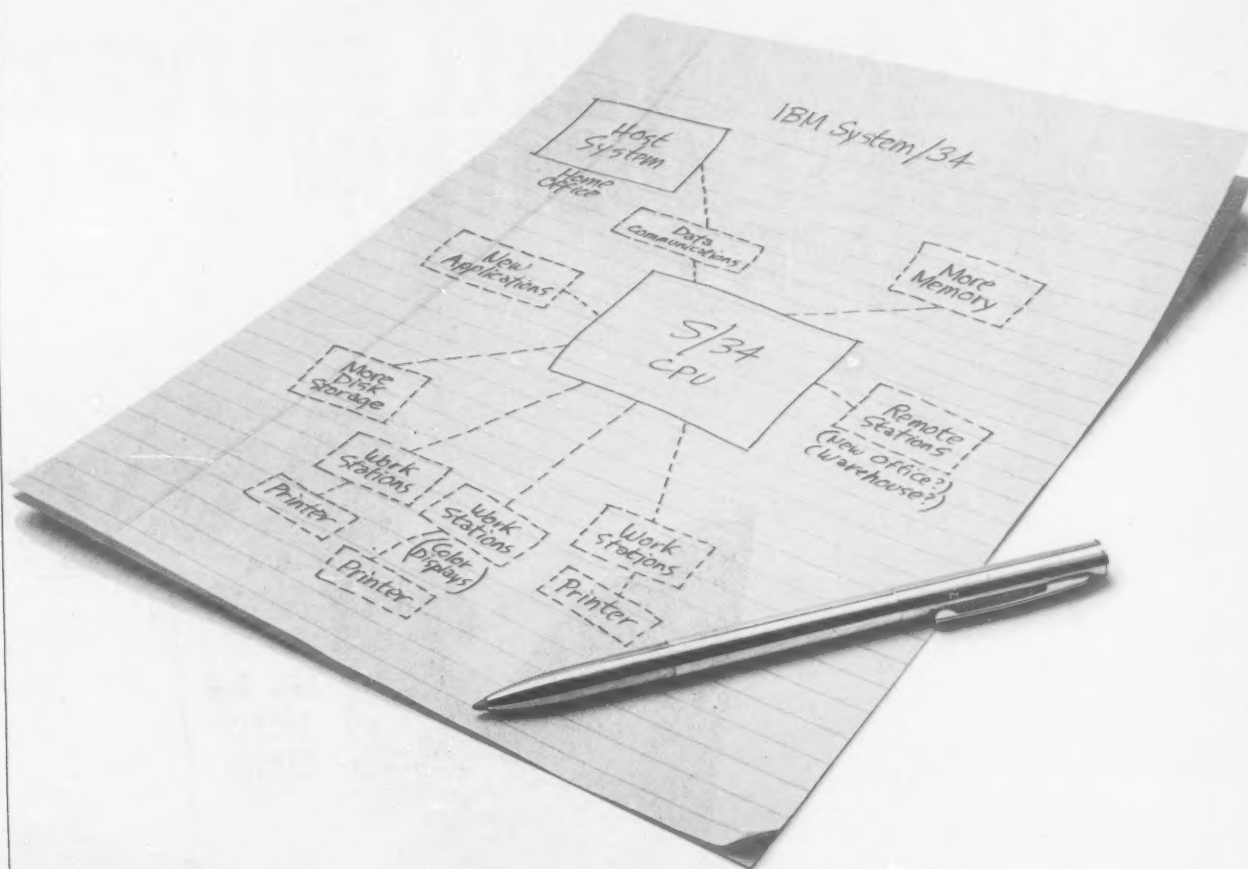
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EDITORIAL

Chasing Rabbits

Large-scale systems users thinking about acquiring micros in their shops have a lot in common with little Alice in Lewis Carroll's famous satire *Alice's Adventures in Wonderland*. Only instead of chasing white rabbits into a fantasy land, computer users are in hot pursuit of the micro-computer.

A few users, however, have elected to take a closer look at micros and their impact before jumping headlong and discovering — as Alice did — a land filled with contradictions and confusion.

At the recent Personal Computer Market Forum, E.F. Hutton, Inc.'s executive vice-president of operations, Norman Epstein, shocked attendees by announcing that his firm strictly opposes the widespread use of personal computers within the organization [CW, March 28]. The broker that supposedly everyone listens to supports *personal computing*, but will rely on a network of dumb terminals and time-shared superminicomputers instead of the popular stand-alone micro.

Hutton is not alone in its individuality. Metropolitan Life Insurance Co. earlier announced that it, too, will welcome personal computing, but will not furiously push installing microcomputers to be used as links to its corporate data base.

There is no denying that personal computers are rapidly becoming an accepted part of large-scale data processing. In a recent survey of management information systems departments across the country, International Data Corp. (IDC) found that 67% of large-system users have drawn up formal policies regarding microcomputer acquisitions. In addition, 60% of the users who took part in the IDC study agreed that micros will eventually replace IBM 3270-type or "dumb" terminals.

While *Computerworld* advocates the use of personal computers within an organization — to increase overall productivity; off-load overburdened mainframes and data bases; and, to some extent, combat computer illiteracy and phobias — the actions of both Hutton and Metropolitan Life have thrown some sobering cold water on what is fast becoming a micro acquisitions frenzy. While the widespread use of micros within a company can boost production and improve access to corporate data, it can also jeopardize information security and cause a firm's operations to be split into multiple data fiefdoms that hinder rather than help the data processing flow.

Few, if any, firms that we know of have shadowed the actions of Hutton and Metropolitan Life and officially banned the widespread use of micros within their organizations. However, a number are seriously considering, or have instituted, very strict acquisitions limits. Still others have gone so far as to outlaw the use of such transportable devices as floppy disks that could be crammed with sensitive corporate data and then easily slipped into the briefcase of an unscrupulous employee.

As companies optimistically chase micros into what may seem to be a DP wonderland, it might be worthwhile to remember that while white rabbits are attractive quarries, they can also uncontrollably multiply if left to their own unchecked devices.



LETTERS

Computer Felons

In the article "Consultant Profiles Typical Computer Felon" [CW, March 1], consultant John R. Maples of Special Security International Corp. identifies four ways in which the computer felon is likely to strike. One of the ways is "via programming." The Wells Fargo bank fraud was then cited, apparently to support this comment.

In Jay BloomBecker's In Depth article "Lessons From Wells Fargo" [CW, July 5, 1982], the Wells Fargo case is presented in detail and BloomBecker indicates that the fraud was done without programming or altering any computer programs, but by preparing false debit and credit tickets. The perpetrator knew the system's controls and deliberately circumvented them. A better example might be preparing fraudulent input to a computer system rather than programming or altering computer programs.

Additionally, Maples states that a thorough background check should be performed on all data processing professionals and we agree. However, other published information shows that over 70% of the computer crimes committed are by systems users, not DP personnel. Therefore, if this percentage is even remotely accurate, system users should also be included in these background checks.

Robert Klenk

Richard W. Beddow

Department of the Auditor General
Harrisburg, Pa.

Lack of Commitment

In Larry E. Long's Turnaround Time column "Should Managers Hire Trainees?" [CW, Jan. 31], there is a letter from a DP department director suggesting that entry-level programmers seek six-month intern-

type positions without pay to gain experience and a letter of recommendation.

I read the letter with interest, for I am a recent computer programming graduate, and I am seeking an entry-level position. Several months ago, I realized that in these recessionary times it might be difficult for companies to justify the expense of hiring and training inexperienced programmers. As a result, I began asking companies to take me on as an intern. I stipulated that I would expect no financial remuneration or any guarantee of a job with the company in the future. Over a period of four months, I have received few replies to my proposal. One organization indicated that even as an intern I would be too great a financial burden. As yet, however, no one has taken me up on my proposal.

I'm not completely convinced that the problem with hiring trained but inexperienced programmers is so much financial (although I'm sure that the expense is very real) as it is a general reluctance and lack of commitment to assist new programmers.

I wonder if organizations wouldn't benefit from some kind of formal internship program. Perhaps a small fee could be charged if necessary. In this way, newly trained programmers could more easily gain valuable experience and, at the same time, they could help to expedite routine work. Since many companies have had to cut back on their number of programmers, it seems that a little extra assistance might be welcomed.

If the computer industry is to help lead this country out of the current recession, I think there may have to be some small commitment to hiring and training those individuals who have taken the time to get the education and training necessary to become programmers.

Gregory C. Jewett

Berkeley, Calif.

LECHT ON SCIENCE/Charles P. Lecht

A Man's Hologram Is His Castle

As stone records a time that antedates human history, before assuming its more familiar, domesticated role as both building block and register of our past, so holography, the man-made extrapolation of the natural holograms that comprise our genetic materials and organic memory, will form and bear witness to our future.

Now, it came to pass that stone as a medium for the storage and expression of memory or desire was, except in the special, precious case of the arts, ultimately supplanted by wood, paper and metal. This is because however estimable its contribution to the unfolding of our story on Earth, stone could never achieve the degree of convenience or portability that would have been necessary to preserve its value in that capacity, given the awesome speed of today's world.

One need only consider the awful racket an arriving Western Union telex would make were it graven on stone, while a derrick would be needed to deliver the average letter of credit. So in their turn have metal, wood and paper become too heavy, their very "thingness" impeding the rush and press of events.

Recording Data

At present, we can record data on disks, tapes and chips which, while no less material than rock, are more capable and more versatile. But unlike previous recording media, special devices are needed to render their contents intelligible. The potential for expressing the content of these media is hobbled by limitations inherent in the display devices on which they depend — at best, high-resolution digital TV. These devices constitute windows through which may pass only the flattest of pictures of otherwise robust digital representations of reality.

'Imagine for a moment that we are living in a world of unlimited holography. In this world, our capacity to create holographic imagery is so developed that vision alone is no longer a trustworthy discriminator between the material and ideational states of an object . . . It's a world rich in artificial experience — the successor to artificial strength (engines) and intelligence (computers).'

Having evolved in an environment with three obvious dimensions, man has generally found TV imagery a poor substitute for the "genuine article." The same holds true for movies. Certainly there are instances in which the TV experience is preferable to a more direct level of involvement, as in the case of war (although we will all remember the impact that the first fully televised war in Vietnam had upon our dinners). Or it can represent the only level possible, as with broadcast-newsworthy events (in the lives of other people).

So the question is not whether TV is a desirable display medium; as I said earlier: it's the best we've got. Still, I doubt whether anyone has ever actually mistaken the poor approximations appearing on flat TV screens for the actual things approximated.

This is not to say that TV isn't a smashing substitute for video game parlors or attending movies and major sports events (given the pain of getting there these days); but the practical limits to its size, its inability to recreate a convincing sense of depth in the eye of the viewer and persistent problems with the quality of its reception make its relationship to the real thing tenuous in the extreme. It is as though the viewer were being confronted with a com-

mercial, a "trailer" for reality. Indeed, the feeble representations of the mass market TV program are likely to suffer, where their connection with reality is concerned, by comparison to the routine vivacity of contemporary TV commercials.

TV's Heir Apparent

With our respects for television thus paid, I move on to discuss TV's heir apparent — holography — for I believe that its emergence constitutes a breakthrough of the deepest and most positive consequence to us all.

Imagine for a moment that we are living in a world of unlimited holography. In this world, our capacity to create holographic imagery is so developed that vision alone is no longer a trustworthy discriminator between the material and ideational states of an object. Other senses, like feel or taste, have to be employed to test the reality of, for example, a Pop-sicle lying in the fridge. Whatever the drawbacks of this holographic world, its virtues are so many and so rich that we'd be fools not to apply the fullest measure of our intellectual and physical resources to the task of bringing it into being. It's a world rich in artificial experience — the successor to artificial strength (engines) and intelligence (computers).

Of course, holography won't sud-

denly appear, fully realized, upon the scene, like Grace Hopper springing from the head of Zeus. The more likely first-generation descendent of modern TV is a digitalized presentation of mixed TV images, possibly including your own, designed to permit creation by you the viewer of hybrid, real-time home/studio programs. This brings you (literally) into the picture.

Three-Dimensional Projection

But that picture is still flat. Next, quality, three-dimensional projection would allow viewers a simulated escape from the flat, confining face of contemporary TV receptors, but still in a frame-independent medium and still probably requiring red/green glasses or some other similar, encumbering contraption.

Then, finally, there will emerge the most significant of all projections: the hologram. At first encased and framed like a diamond on display, it will gradually evolve in such a manner as to free itself of excess physical enclosure, ultimately abandoning its cage to no less a degree than has today's radio.

Capable of projecting life-size images of objects and presenting them with such verisimilitude as to confound the eye, holographic recording/projection systems will constitute the first nonmaterial manifestation generators to hold real promise of providing apparent stimuli to enough of our senses to deceive all of them.

The cost of personal illusion (of every sort) has so risen that the economies of scale realized in broadcast technology, if brought to bear on this inflationary situation, would provide relief to almost everyone. While it may be true that zircons never replaced diamonds in the front ranks of a girl's best friend, we can expect

(Continued on Page 48)

HUMAN CONNECTION/Jack Stone

Cyberphobiacs Need Medical, Not DP, Advice

Harold and Elizabeth Guarnieri describe in psychological terms the learning process of the new user in "The Psycho-Computer Syndrome," in *Computerworld Extra!*, Nov. 17, 1982. The analysis is, I think, quite interesting.

However, it does not seem practical, at least not under current conditions of training new users, to advise a DP manager, as the authors did: "If you recognize the . . . syndrome, you can enhance the effectiveness of every training session. If you understand the pattern of successive stages, you can build the strength of one stage into the strength of the next."

Another suggestion that seems impractical is: "If you study [the syndrome's] pattern, you can equip yourself to deal with one of the challenges you will encounter as you enter the information age — your staff's evolution into information

This is the fourth article in a series, "DPers and the Psycho-Computer Syndrome," coauthored with Joanne Barker.

workers."

It is tough enough to get commitments from management for an in-house training class in the first place and even more difficult to pry a decent trainer loose from other assignments and make some terminals available; now the training manager is told to take the syndrome to heart and anticipate that a third of the class may be so cyberphobic as to thrust their fists through the display tubes. If it were me, I'd try to find a new job.

Health Policy

Most of my feelings on the subject are derived from my background as a

manager with IBM many years ago. One of the major policies followed there — and one which was particularly effective because it was easy to understand and implement — pertained to both the physical and mental health of employees.

The policy said, in effect, that if there were a suspicion that an employee was ill, managers were promptly to relieve the person of job responsibilities and offer immediate assistance in arranging medical advice and attention.

In other cases, managers were expected to handle the routine fears and concerns of employees, as related to the job, on their own.

Medical Professional

So, if a new user responds to impending automation by developing symptoms that are suggestive of a mental or physical illness — a person I would call a "true cyberphobic" —

then the user should be released from the office temporarily and directed to the office of a medical professional.

On the other hand, if a new user exhibits only the same sorts of apprehensions that occur whenever there is a major change in the work environment — new boss, physical move, reassignment, merger, layoff and so on — then this person should be expected to conquer such apprehensions during automation training and learn to deal easily with the computers.

Finally, DPers should be expected to be knowledgeable of and employ the tools, techniques and styles that have proven to be effective in new user training in order to speed the personal and social transitions that such users must make.

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A Man's Hologram Is

(Continued From Page 47)

the nonmaterial representation of diamonds to become popular once they have become indistinguishable from the objects for which they are stand-ins. Not only will holography provide us with artificial reality of such quality as to threaten the meaningfulness of the real stuff, but on-the-fly processed improvements will be possible so that even nature's flaws can be suppressed prior to reissue of her bounty in electronic format.

Great Things

I can see it now: a room dedicated to holographic projection wherein sound, sight, smell, touch and taste are programmed to engage all our five senses in the process of creating an ultimate illusion. Truly great things could be experienced in such a room. Many of life's anxieties would evaporate in this radiant chamber, glowing with the final enchantment of science in the service of dreams; and the need to act out our baser compulsions and outright madnesses in the real world could be circumvented, if not entirely dispelled.

Artificial experience could manifest itself with no less realism than that available in today's space shuttle cockpit trainers. Sitting and/or standing in the holographic theater, we could test our ideas with minimum physical effect and commensurately less risk to our own (and others) life and limb. We might drive a motorcycle, hang glide, parachute, deep-sea dive or climb Mt. Everest. Such impulses as might otherwise drive us to participate in or suffer the effects of actual war, murder, imprisonment, hatred, general mayhem and disease could be tested and ultimately denied; love, patience, kindness, maturity and intelligence could be practiced for ultimate acceptance.

In the holographic world, we will find fewer reasons to travel when travel is not mandatory. If TV lessened attendance at Yankee Stadium, holography will spare the Coliseum further depredations beneath the trampling fee of tomorrow's touristic legions.

Restaurant patronage will dwindle. No longer required to attend dinner with chance guests, you may compose your own guest list and have guaranteed access to your favorite corner table at the Tour d'Argent, in the company of Marcello Mastroianni or Bo Derek or whoever else inhabits your celebrity library. (Furthermore, you could reasonably expect that guests so assembled would be pleased to "see" you.) As to real restaurants, they will pay their patrons to attend; profits will be derived both from real-time holographic projection into the homes of diners not willing or able to attend and from projection residuals.

Advertising Transformed

Advertising will be transformed into a genre of truly gut-wrenching 60-second dramas, replete with crisis and epiphanous resolution. (We pass in respectful silence over the prospects for broadcast evangelism.)

Consider the compulsion to buy that could be engendered in the right hemisphere of every New

Yorker's brain by a vivid dramatization of roach infestation. Thrills and chills enough for the most ardent masochist and no unsanitary mess! The arrival of the White Tornado could scare (scour?) the pants off the housewife, so to speak, yet leave her sufficiently intact to buy any product capable of delivering fair weather after so delightful a storm. A Drano ad might set us in the very vortex of a hair-and-sludge-ridden whirlpool, the better to drive home its message and promise of crystalline deliverance. The suggestive range of commercials promoting heartburn remedies, vacations, food and drink will stimulate the appropriate enzymes and hormones of even the most thoroughly sophisticated holographer. Some resort ads will doubtless have to be viewer restricted: robot monitoring of the vital signs of sample audiences will be responsible for generating suitable ratings — for example, PSG (parent-surrogate guidance suggested).

Clothing will improve. Standard video tunics will receive new clothing broadcasts, offering all of us at least a shot at the latest in up-to-the-picosecond protean chic. The ultimate fashion statement will turn out to be the least syllable of recorded — or prerecorded — time, just as we always thought.

In a more practical vein, the powerful psychological and physiological responses initiated and sustained by holographic stimuli will give us the means to modify our perceptions of heat and cold, reducing our dependence upon fuel of any kind and exerting a radical influence on all the decisions we used to take by virtue of the "season."

Work locations will be changeable, like phonograph records. How, in fact, could it be otherwise, when universal holography has finally liberated the concept of location from the tyrant Geography? Bringing the office — the whole office — home may at last be possible, should we still wish it. Briefcases will disappear, as will the paper they were designed to contain. With walls of workaday functionality no longer needed to define work spaces, there is no reason to suppose that whole buildings, representing collections of such walls, should not also prove superfluous.

Perhaps with the advent of pure electronic conferencing, we might eventually meet up with a sentimental artifact of, and tribute to, the current Age of the Convention: Hologram Hall. There would gather the holographic images of 10,000 attendees, to be addressed by a series of equally holographic speakers, the entire real interaction being expressed as digital data flowing through the arteries and veins of a communications system.

Improved Memories

Our memories will improve by supplementation. No longer will we need to depend upon the fragmented, imperfect media of the past — photographs, recordings, random physical mementos that no longer evoke whatever it is they were intended to preserve before our mind's fickle eye — but rather will we enter

His Castle: Emergence of Artificial Experience

our holographic room to relive our experiences in all their sensory and associative richness.

It will no longer be necessary (which is just as well, since it has rarely been fruitful) to adjure children to "listen to the voice of experience" when the imagery companion to that voice is available as a holographic jukebox selection. Education will be riveting indeed when it is no longer limited to serving up the lifeless droppings of otherwise vital, magnificent ideas in the textbook's dreary pan. Learning will then be a living and connected thing, with neither desks nor schools, and the mutual torment of instructor and student will be no more than a curious relic.

There is scarcely a thread running through the fabric of our lives whose color and texture will remain unaffected by such radical changes as we now contemplate. Our values will be strengthened as our dependence upon material things — and particularly those in shortest supply — diminishes. With nearly all our needs — except those of direct, biological consequence like food and shelter — fulfilled via broadcast, money will be devalued as a measure of status or achievement; and the love of it will seem risible. The concept of personal development will come to include the individual's ability to internalize holographic imagery and map this onto the intellectual/emotional equipment with which he confronts and masters his own, and larger, realities. The human brain will thus enlarge, and more of its potential will be realized.

Fear of Depersonalization

Inhibiting our ability — perhaps our willingness — to accept the advantages of a holographic world is the fear of depersonalization. Periodically, this fear will don the mask of virtue. It is not without precedent in the history of our species to advertise as principle those unexamined positions whose origins may

be found in our viscera rather than in our ethical calculations. Sometimes arguments such as these have been marshalled to get the trains running on time; often — indeed, far more often — they have been ranged in opposition to the very existence of trains.

In the case of holography, the danger that applied technology will fatally compromise the social contract by

increasing the real distances between men, alienate those qualities in us upon which humane behavior depends or neutralize the complementary objectives of self-restraint and self-protection that have thus far more or less informed human intercourse on a crowded planet, is overstated. We have successfully negotiated the shifting of the center of the universe from the Earth to

the sun and from the sun to some unknown and probably unknowable locus, without irreversible or lasting damage either to our self-regard or to our survival as a race.

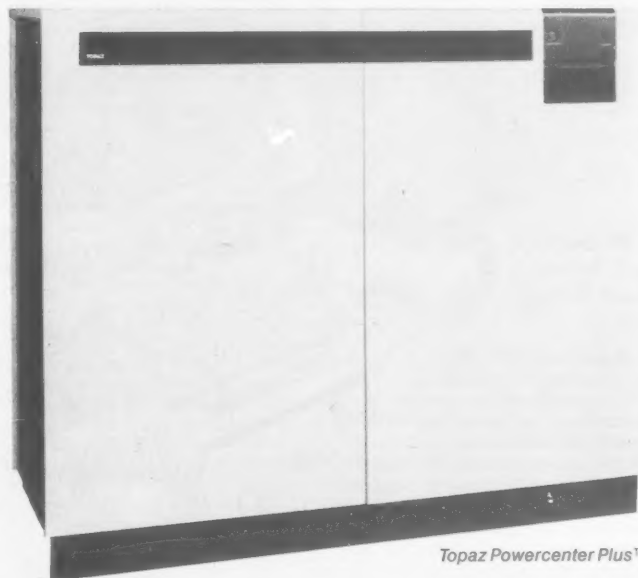
Far from precipitating a cataclysm, or lulling us into extinction through withdrawal of needed intimacy, holography can be expected to free us from a host of pernicious ideas grounded in

our slavish subjugation to materiality. It contains the means whereby we may transcend those perceptions and mores that, while they may once have lent thrust to progress, have with time led us into real — not artificial — cruelty.

Resistance to Change

There can come a time when resistance to change, (Continued on Page 50)

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A Man's Hologram Is His Castle

(Continued From Page 49)

unwillingness to abandon that which no longer serves our practical interests, can pose a greater threat to our sanity and survival than change itself, however radical.

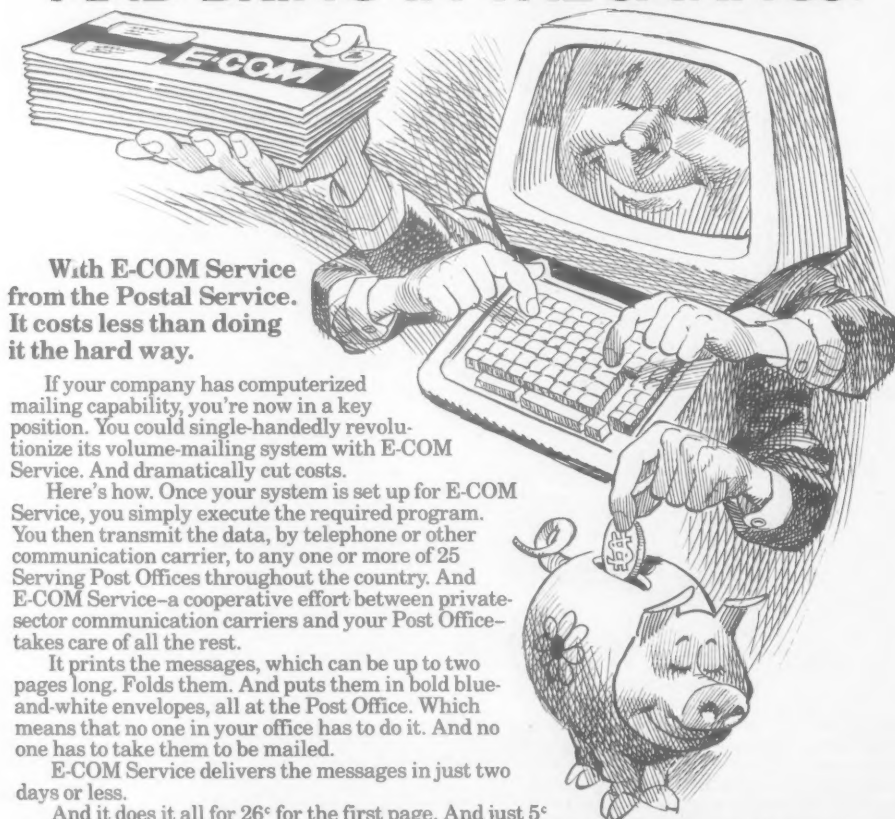
One need only look back upon the role of certain historical bastions of tradition and conservatism to see what mischief has been done in their names. We can no longer count on having such limitless time at our disposal as to be able to waste a century or two negotiating the roadblocks thrown across our path by self-serving establishmentarians or by authorities the origins of whose power are lost in irrelevant antiquity. We

need not undergo Galileo's trial yet again.

As fuel embodies nature's potential for augmenting man's strength, and large-scale integration circuitry embodies man's ability to convert inorganic materials into dynamic, intelligent mind-supporting systems, so holography carries us an important step forward: It maps our dreams onto reality. And in our dreams is the far frontier to which the signposts of artificial strength, and then artificial intelligence, have always pointed.

Lecht is president of Lecht Sciences, Inc., a New York-based think tank specializing in computer and communications technologies.

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LETTERS

The Safe Practice

Roland K. Bown's reader commentary "Who Owns Software Written Under Contract?" [CW, Feb. 7] advises those hiring a software consultant to "put a work made for hire provision in the written agreement" with an independent contractor. He states, "then the software developed pursuant to that agreement belongs to the company and can be copyrighted by the company." This seems to me to be rather risky.

The copyright statute (17 USC Section 101) definition to which Bown's refers states that "a 'work made for hire' is . . . a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire."

It's not clear into which of these categories Bown believes software fits. It is possible in some cases that software may be a collective work, which is defined by 17 USC Section 101 as "a work, such as a periodical issue, anthology or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole."

In general, a piece of software appears to be squarely outside the bounds of what may be deemed by the parties to be a work made for hire. Courts may give an expansive meaning to the definition of "work made for hire" in order to avoid injustices in cases where the contracting parties clearly intended that relationship. But the language of the statute indicates that the doctrine is not applicable. The safe practice in such cases is to include in the contract with the independent contractor a clause whereby the contractor agrees to assign all copyrights to the one commissioning the work.

Robert J. Klepinski
Patent Attorney

Medtronic, Inc.
Minneapolis, Minn.

Is 'Relational' Just a New Buzzword?

By Gabrielle Wiorkowski

Special to CW†

Why is there so much excitement over relational data base management systems (DBMS)?

Is "relational" just a new buzzword or are there significant differences between relational, network and hierarchical DBMS?

To answer these questions, contrast the primary characteristics of the three technologies. The hallmarks of a relational DBMS are its table data structure, ease of use, data independence and theoretical foundation. Relational DBMS use a simple table structure rather than a complex network or hierarchical structure. It is not necessary to navigate through a table or between tables since there are no pointers connecting the tables.

This is in contrast to a network in which it is necessary to know in which set one is working, who the owner and members of the set are and how the sets relate

to each other. A hierarchy is a simpler structure than a network, but it is still necessary to maintain position in a hierarchy when performing most operations. A relational DBMS derives its ease of use from its simple table data structure and its language.

Similar Languages

The three true DBMS on the market have remarkably similar languages. The language of IBM's SQL/DS is Structured Query Language; Oracle, Inc.'s Oracle is Structured English Query Language (Sequel 2); and Relational Technology, Inc.'s Ingres is Query English Language (Quel).

The relational languages are unified languages that are easily used by both end users and systems professionals. The same statements that were designed for end users are embedded in Cobol, Fortran, PL/I or assembler language by systems professionals when developing an application system.

The unified language extends beyond the retrieval and update facilities to the creation, indexing and maintenance of the system. There is no separate data dictionary language. Indeed, there is no separate data dictionary to become out of sync with the reality of the application system.

Metadata, or data about data, is automatically recorded in catalog tables when tables, views, indexes and programs are created or dropped. The metadata in this integrated dictionary/directory cannot be changed directly, but it is accessible by any user. A considerable amount of application system documentation can be generated from the catalogs using select (read) statements.

Relational DBMS have a high degree of data independence. An application system's data can be changed a great deal without requiring changes to existing programs. Data is accessed by name and not by location. Data is ordered by value, not

(Continued on Page 56)

Report Utility Supports MVT/VSE

SANTA CLARA, Calif. — Procxref, a report utility for job control language and cataloged procedures, now supports IBM's MVT/VSE Extended Procedure Support, Software Assistance, Inc. has announced.

Job control statements for MVT/VSE installations can be listed, summarized and cross-referenced directly from system or private-source statement libraries or from the MVT/VSE procedure library, a spokesman said. Support for variable symbols and abbreviated JCL commands are included.

Procxref produces a detail listing of all procedures selected and a number of cross-reference reports for the different types of JCL statements contained in those procedures, the spokesman said. The detail listing is a report of the entire contents of all procedures selected in a two-up format, which allows multiple procedures per page. Cross-references are created for phrase names, file names and file identifications.

The purchase price is \$1,200 through P.O. Box 2101, Santa Clara, Calif. 95055.

For IMS/DC, CICS Environments Productivity Tool Debuts

WORCESTER, Mass. — Specialized Software, Inc. has announced the general release of its on-line interactive productivity tool designed to run in IBM IMS/DC and CICS teleprocessing environments.

Tables/DLI is intended to permit users to create IBM IMS files without conventional design and programming. File definition is interactive, and edit and validation criteria may be specified for each data element or field. Primary and alternate indexes are automatically generated by the user, the vendor explained, and definition procedures include provision for on-line creation of supporting documentation.

Once files or tables are defined, they reportedly may be maintained either on-line from terminals or by application programs using built-in interface routines. Key maintenance functions include add, change, delete, inquire and summarize. The vendor noted that any field may be used as a search field. Segment search arguments are not required. On-line screens are generated automatically, according to the function selected.

As a programming aid, Tables/DLI is

said to generate Cobol copy code from user-defined files. Stored in a copy library,

(Continued on Page 54)

Control/CICS Gets New Release

SUNNYVALE, Calif. — Boole & Babbage, Inc. has announced Release 2.2.0 of Control/CICS, a resource accounting and system performance monitor for IBM CICS users.

The new release is said to utilize a user exit facility in CICS Release 1.5 that allows multiple CICS regions to use a single CICS task controller program module. In addition, the package now allows logging to either the Bdam file managed by Control/CICS or to a journal file maintained by CICS, a spokeswoman said.

The package is priced at \$10,000, including one year of maintenance. More information is available from Boole & Babbage at 510 Oakmead Pkwy., Sunnyvale, Calif. 94086.

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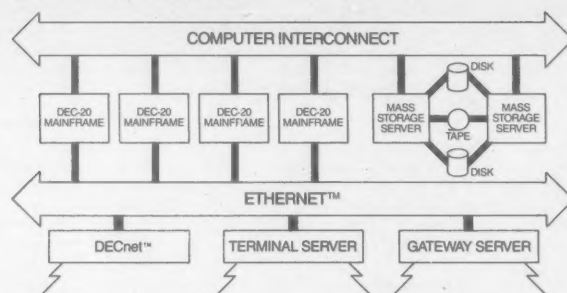
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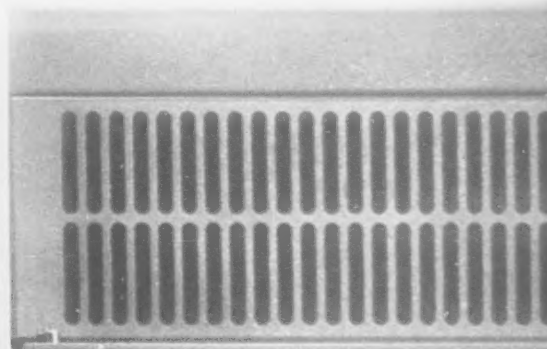
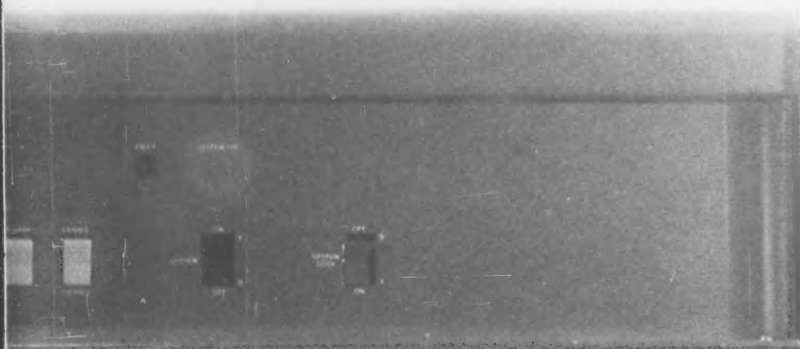
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'Abend-Aid/Cobol' Provides Source-Level Debugging

BIRMINGHAM, Mich. — Compuware Corp. has announced an additional option for its IBM OS Abend-Aid debugging package.

Abend-Aid/Cobol provides source-level debugging for Cobol programs, a spokeswoman said. The package reportedly combines the output of the Cobol/VS and ANS Cobol compilers into a single source program listing, eliminating data maps, condensed listings and other supporting lists. Abend-Aid/Cobol inserts compiler messages beneath the actual source statement lines in error, thereby aiding programmer debugging and problem tracking.

When a debugging program

abends, the option identifies the Cobol source statement line causing the error, the Cobol verb involved, the Cobol symbolic field name containing the error and the contents of the data field at the time of theabend.

The price for the option ranges from \$3,500 to \$7,000, depending on hardware and operating system, from the firm at 32100 Telegraph Road, Birmingham, Mich. 48010.

For IBM OS, DOS

Comparex Utility Updated

SAN MATEO, Calif. — Serena Consulting, Inc. has announced Release 4.3 of Comparex, its file comparison package for IBM OS and DOS.

Comparex compares data or text files of any organization, including Qsam, Isam and Vsam. It now does full processing of OS/VS partitioned data sets, a spokesman said. Comparing can be done member to member or directory to directory.

Users may specify field/mask/key displacements relations to one or zero, the spokesman said. The utility determines the correct data set organization of each of the three files involved without user specification. The text comparison logic frames differing blocks of records for easier reconciliation.

Comparex lists for \$8,000 for OS and \$4,000 for DOS through P.O. Box 5574, San Mateo, Calif. 94402.

SMC Basic Out for PDP-11s Under RSTS/E

PLEASANT HILL, Calif. — Computer Systems Development, Inc. has announced a version of Science Man-

agement Corp.'s SMC Basic for Digital Equipment Corp. PDP-11 computers running RSTS/E.

SMC Basic is fully compatible with software applications developed under Basic Four Corp.'s Basic. The company claimed it is the only interpretive language for PDP-11s that allows use of files under RMS-11K, DEC's record management system. RMS files may be defined dynamically within a program, and a program may have up to 10 indexed files open at the same time, a spokesman said.

Other features of the language are business mathematics, built-in screen-handling functions, automatic conversion of numeric data types, shareable public programs, external calls with recursion and all data in common, if desired.


The price is \$2,800 under RSTS/E from Suite 700, 140 Mayhew Way, Pleasant Hill, Calif. 94523.

'Tables/DLI' Out for Release

(Continued from Page 51)

this code corresponds to the file description created during the on-line definition phase. According to the vendor, Tables/DLI isolates user files and table data from program logic, enabling application systems to be developed, tested and maintained without concern for how user files are stored and managed.

Tables/DLI is priced at \$12,000, with multiple CPU discounts available, the vendor said. A \$1,000 annual maintenance fee provides the licensee with modifications and future enhancements, the vendor said from Suite 206, 90 Madison St., Worcester, Mass. 01608.



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Serves IBM, DG Series

'Campar' Audits for Retail

NEW YORK — Data Basics Corp. has announced Campar, an on-line accounts receivable package for IBM 370 or 4300 systems running DOS/VSE, CICS and Vsam or for Data General Corp. MV series computers.

Campar is a self-auditing package for retail stores and chains. It features a bridge program to allow input of invoices, credit and allowance

transaction and the ability to use existing customer master updates to perform updates to the accounts receivable systems customer and credit records files.

Check entry and cash application programs allow for on-line posting and application of cash with positive controls and audit trails, a spokesman said. During cash application, invoices and credits can be paid, allowable discount is computed, various allowances can be accepted, adjustments made and open items created for charge-backs, on-account cash or cash in advance payments.

A perpetual license costs \$27,000 with annual maintenance of \$3,500, the spokesman said. The company is located at 151 W. 40th St., New York, N.Y. 10018.

Accelerator Cuts Runtime For PDP Users

WELLESLEY, Mass. — Cortex Corp.'s Application Accelerator, a software option to the Cortex Application Builder, reportedly shortens machine runtime for Digital Equipment Corp.'s PDP-11 users under VMS, RSX-11, RSX-11M+ and IAS operating systems.

By transforming descriptions of procedure and screen interaction into macro, the Accelerator is designed to increase performance and minimize machine resources. It targets smaller DEC processors, a vendor spokesman said.

Derived from Inform, a fourth-generation productivity tool, the Builder works as a single unified system with common terms, design concepts and usage philosophy, according to the vendor spokesman.

The Accelerator costs \$15,000. More information is available from Cortex at 55 William St., Wellesley, Mass. 02181.

Komand/OLC Gets Update

MANASSAS, Va. — Pace Applied Technology, Inc. has released an enhanced version of its On-line Costing (OLC) option for the Data Center Accounting System (DAS) module of the company's Komand DP Charge-back System.

Komand/OLC calculates step and job costs based on resources consumed at the time of termination, the vendor said. Komand/OLC runs under IBM MVS or VSI. The option costs \$3,000. The DAS module costs \$16,000. A full Komand system costs \$31,000 from 7900 Sudley Road, Manassas, Va. 22110.

Help Display Facility Out

TORRANCE, Calif. — Data 21 has announced its latest Help Display Facility (HDF), a package said to enable nonprogrammers to develop structured on-line Help for new and existing on-line applications running under IBM's CICS.

Help facilities reportedly can be created and tested down all levels. HDF Help menus and screens are de-

veloped on-line in a free-form manner; no basic mapping is required, the vendor said.

Also, the text can be highlighted or made to flash, and variable substitution can be employed to display such information as current date and terminal identification.

HDF is available at an introductory price of \$1,050. More information is available from the vendor at 19110 Van Ness Ave., Torrance, Calif. 90501.

'Trace' Tailored For Architects

PLACENTIA, Calif. — A menu-driven accounting package with project cost accounting capability for use with Digital Equipment Corp. RSTS/E systems has been announced by Data Processing Design, Inc.

The Transaction Accounting for Cost Evaluation (Trace) software is aimed at architects, engineers, contractors and other consultants. Modules include general ledger, accounts receivable and accounts payable.

Trace can be run under RSTS/E version 7.0 or later or DEC's CTS-500. It requires DMS-500, which is provided with CTS-500 but is an additional purchase with RSTS/E. Trace costs \$5,000 for each module, \$20,000 for the complete system or \$17,000 for everything but payroll. The vendor is located at Suite F, 181 W. Orangethorpe, Placentia, Calif. 92670.

Bisynchronous Polling Designed for System/34

DALLAS — Posse, Inc. has announced the release of the Bisynchronous Polling Package for the IBM System/34.

The package polls Sweda International L-50 data collectors bisynchronously at 2,400 bit/sec, converts the data from Ascii to Ebcidic code and performs basic editing, a spokeswoman said.

The package costs \$2,000, with the Ascii and Ebcidic conversion and editing portions alone available for \$1,200. An asynchronous version of the package for the IBM Personal Computer will be available in the summer.

The company is located at Suite 2161, 2828 Forest Lane, Dallas, Texas 75234.

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The Answer To All Of Your
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What is LIBXREF?

LIBXREF is a system development and maintenance tool for analysts, programmers and database administrators. It automatically documents where components of DP systems are used and how they relate to one another. It reports on the impact of proposed changes to systems thus reducing costs and lead times by eliminating system failures due to unforeseen consequences of change. LIBXREF is a simple passive utility providing the benefits of a database dictionary to both IMS and non-IMS installations but without incurring the costs of a dictionary. Unlike a dictionary LIBXREF is completely automatic. It has no ongoing costs for manual capture of data about systems and requires no new skills, staff or procedures.

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Which jobs use my files?

Which jobs use my disk packs?

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Essential for IMS Users.

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IMS Solutions

I have changed a segment. Which PSBS, programs and databases are affected?

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Which programs update or change my databases?

Which DATABASES use HDAM as an access method?

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Shows which programs, PSBS and DATABASES reference segments and

FIELDS (and vice versa).

Shows how all logical and physical DATABASES reference each other.

In short shows how all IMS components relate to one another and the host system.

Dictionary Owners Note

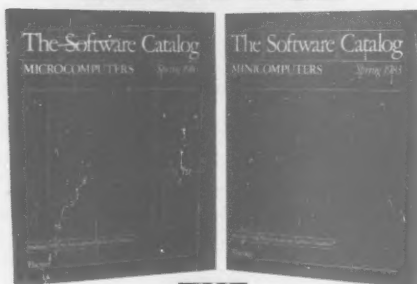
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Software Module Marketing Adds Option to PMO Utility

SACRAMENTO, Calif. — Software Module Marketing, Inc. has announced a new option to its Program Management Optimizer (PMO), a utility designed to increase efficiency in multiple-CPU environments by routinely maintaining and updating the BLDL, a list of frequently ac-

cessed programs in the link library.

The Cross System Communication Option operates in the computer complex where more than one CPU is running. When an update is made on one CPU, the other CPUs automatically receive the same adjustments, a spokesman for the vendor said.

PMO costs \$5,000 per CPU, and the Cross System Communication Option is priced at \$1,500 per site. Additional information is available from the vendor at 1007 Seventh St., Sacramento, Calif. 95814.

Displaywriter Gets Options

HELENA, Mont. — Advance Business Computing Corp. has announced a time accounting and billing system for the IBM Displaywriter system.

The system reportedly processes hourly time card information, prints monthly income reports and produces client statements. Up to 750 clients, 1,000 activities and 100 employees may be processed on one diskette, a spokesman for the vendor maintained.

Each time card entered is assigned a client number, activity type and employee number. Multiple billing rates may be assigned for each employee and up to 2,000 time card entries may be processed and stored for each billing period, according to the vendor spokesman.

The system reportedly requires the UCSD P-System runtime operating environment. It is available for a one-time license fee of \$350. Additional information is available from the vendor through Box 654, Helena, Mont. 59624.

Application Aids Target VS Series

NEWTON CENTRE, Mass. — Cardinal Data Corp. has released application software for the Wang Laboratories, Inc. VS series of computers utilizing Cincom Systems, Inc.'s Total data base management system.

The Pro/Fit Network offers the following on-line, fully integrated applications: Sales Order Management, \$25,000; Purchase Order Management, \$20,000; Inventory Control, \$15,000; General Ledger and Financial Report Writer, \$17,500; Accounts Receivable, \$15,000; and Accounts Payable, \$15,000.

Written in standard Cobol, the packages include source code and complete documentation. Discounts are available for multiple licenses from the firm at 189 Wells Ave., Newton Centre, Mass. 02159.

Is 'Relational' a New DBMS, Or Just a New Buzzword?

(Continued from Page 51)

by file sequence. Tables are related by value, not by pointers. Access paths are determined by the system, not by the program. Access changes are managed by the system and do not require program recompiles.

For example, if a program was developed when an index existed on the table and the index was later dropped, the program would not need to be changed or recompiled. Rather, the machine-level access module is marked invalid when the index is dropped, and the next time the program is executed the relational DBMS regenerates a new access module without affecting the program.

The relational DBMS are based on a theoretical relational model. This is in contrast to the network structure that was borrowed from telecommunications and the hierarchical structure that was borrowed from bill of material systems. Network and hierarchical DBMS were developed in a heuristic fashion and have evolved over the years to accommodate as many requirements as possible.

Most DBMS began with a data definition language and a data manipulation language. Typically, the data definition language was a customized set of assembler macros and the

data manipulation language was a customized set of call statements to be embedded in a host language.

As demand dictated, DBMS developers added a report writer that had no similarity to the data definition and data manipulation languages. Requirements for a query language developed. Some free-form report writers were enhanced into query languages. Data dictionaries were developed with languages that had little similarity to the other languages in the DBMS.

The developers of relational DBMS needed a language to perform the functions of relational algebra and relational calculus in a manner that was suitable for application systems development and end-user query. They learned from the proliferation of languages in DBMS on the market and developed a unified language that accomplished all the required functions in one consistent and easily learned language.

The result has been well-planned, developed and implemented DBMS that gain their power and flexibility from a theoretical foundation and experience accumulated over a decade. Relational DBMS offer the facilities in the '80s that were sought during the DBMS evolution in the '70s.

Wiorkowski is DBMS manager at Sun Information Services Co. in Dallas.

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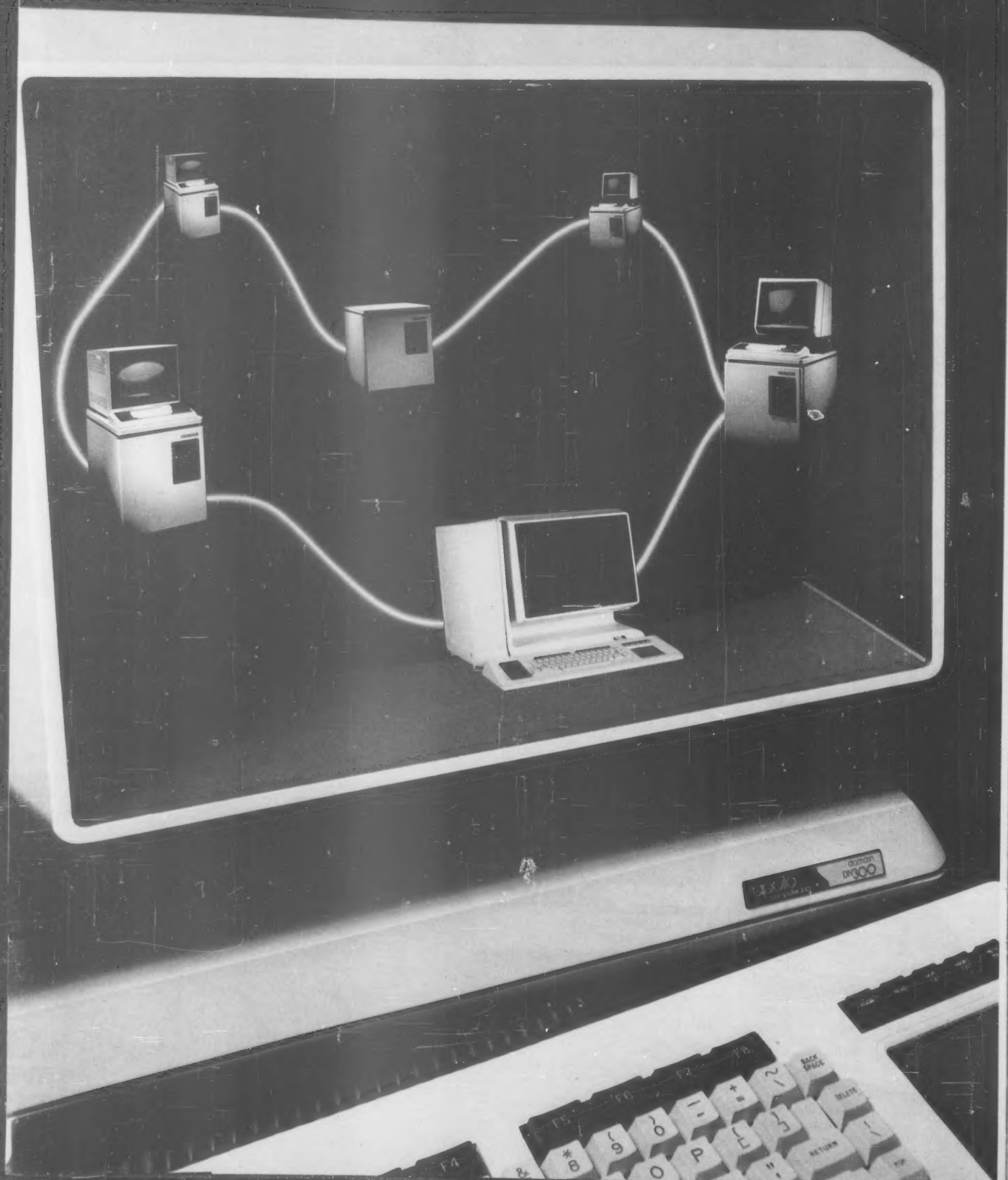
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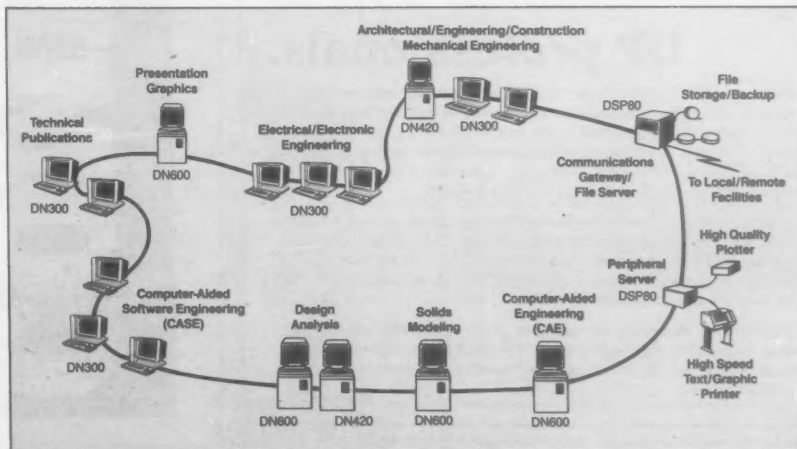
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For example, use the DN600 full color graphics computational node for solids modeling, VLSI CAD, finite element analysis, pre- and post-processing, 3-D drafting, and image analysis. Or use it as a full-function CAE workstation... The DN420 and DN400 handle the same applications except in monochrome. Use the economical new DN300 desktop mainframe in applications such as computer-aided software engineering, design documentation, high-quality presentation graphics, engineering and manufacturing database management, drafting, and electrical design capture and simulation.



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Domain: The Next Generation

Megatek 'Template' Boasts More Configurations

SAN DIEGO — Megatek Corp. has announced that it will offer its Template interactive graphics package in a lower priced configuration designed for end-user applications.

The new configurations include routines needed to create, display, modify and save graphics information for applications that include scientific analysis, financial reporting, process control or engineering design, a spokesman said. Two- and three-dimensional graphics can be accommodated in batch or interactive modes on virtually any 32-bit or large computer supporting a Fortran compiler.

The basic configuration includes a set of input primitives that accept data from keyboards, buttons, locators, digitizers, valuator or picks and a set of output primitives that create lines, polylines, geometric figures, polygons and text, the spokesman said.

Also included are over 200 segment/subroutines functions for the definition, manipulation or deletion of groups of primitives that make up an image.

Facilities for modeling objects in a variety of coordinate systems and viewing operations for specifying how or what portion of a picture is to

be displayed are also provided, the vendor said.

The basic configuration costs

\$12,000, the vendor said from 3985 Sorrento Valley Blvd., San Diego, Calif. 92121.

ADP Unveils DP Phone Service

ANN ARBOR, Mich. — ADP Network Services, Inc. has announced data services that can be initiated in a telephone call. The services include a hot line, a data advisory service and a custom data facility.

The services provide information about the range of data and services that are available from ADP, a spokeswoman said. The data advisory service helps data subscribers find the information they need and suggests appropriate uses in business analysis and forecasting applications.

A report describes the information and suggests ways to apply the data analysis, the spokeswoman said. Fees for use of the data advisory service range from \$50 to \$150.

The custom data facility makes any publicly available data accessible through ADP's teleprocessing network. The company will put the series on-line for the cost of the information needed, the spokeswoman said. The company is located at 175 Jackson Plaza, Ann Arbor, Mich. 48106.

Litton Graphics Service Out For Southern Calif. Firms

CANOGA PARK, Calif. — Mellon Information Center, a division of Litton Industries, Inc., has announced the formation of a graphics service for businesses and scientific organizations in Southern California.

Litton Computer Graphic Services includes the production of 35 mm color slides, 8-in. by 10-in. color transparencies for overhead projection, 8-in. by 10-in. color prints, 9-in.-wide or 36-in.-wide black-and-white plots and color hard copy, according to a vendor spokesman.

Graphics can be developed by a

customer at his own computer terminal or at a terminal at the Litton facility, a vendor spokesman said. Once the graphics capability is developed, a camera produces transparencies and prints.

The service includes the generation of text, maps, pie and bar charts.

The price to generate the graphics ranges from \$3 to \$35. Slides themselves cost \$5 for 25 slides or more, \$16 for each 8 by 10 color transparency and \$12.75 for each 8 by 10 color print. More information is available from the vendor at 6701 Variel Ave., Canoga Park, Calif. 91303.

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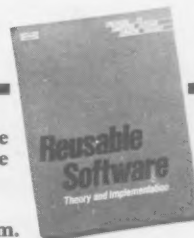
Further, the highly structured COBOL programs in the ReadyCode software means that any programmer can modify the program, no matter who originally wrote it, without having to start from the beginning.

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CW-4/4/83

SAS Adds Graphics Course To Video Training Library

CARY, N.C. — SAS Institute, Inc. has added SAS Color Graphics 100-Series Video Training Course to its SAS Video Training Library.

The eight-module, 10-tape course describes the basics of SAS/Graph, introducing the product and describing its options and several procedures, the vendor said. The course also shows how to use SAS/Graph in conjunction with SAS to display the results of SAS analyses graphically. Workbooks are provided to reinforce the materials presented in the tapes, and an instructional guide and magnetic tape containing SAS/Graph program code for the exercises in the course are available for training coordi-

ners, the vendor said.

In addition to the color graphics course, the SAS Video Training Library includes the SAS Basics 100-Series Video Training Course, covering the fundamentals of SAS software. A free, 30-day review package that includes an instructional guide, workbook and demonstration tape is available for each course. Both courses are licensed on a quarterly basis. The first-quarter rate for corporate SAS customers is \$2,000; each additional quarter is \$750.

Information can be obtained through the Video Product Sales Department, SAS Institute, Inc., Box 8000, Cary, N.C. 27511.

From Tymlabs

'File Manager' Fits HP 3000

AUSTIN, Texas — Tymlabs Corp. has introduced an interactive software package for the Hewlett-Packard Co. HP 3000 computer that is said to perform file inquiry and update functions without the need for custom programming.

Called File Manager, the package allows the user to create a set of specifications describing record formats of a particular file and the fields comprising each format, a spokesman said. File Manager then performs interactive data entry, inquiry and updating for the described file.

The package allows interactive terminals to be used as batch entry devices, the spokesman said. Card image transactions are generated for

input to the batch processing cycle. The new product's file inquiry and updating capability can be used to replace batch updating of master files. Data validation capabilities ensure accuracy of files maintained, and a fast search ability cuts batch printing of master file listings and cross-reference or alpha listings.

The package costs \$1,500 with annual support priced at \$350 from 211 E. 7th St., Austin, Texas 78701.

Prime 50 Series Gets 'Monitor'

HOUSTON — ATM Computing Services has announced a performance measurement system for Prime Computer, Inc. 50 series computers.

Called Monitor, the package is said to provide graphical information that identifies the source of response problems. The information helps to determine whether additional hardware will improve performance, a spokesman said.

Monitor also aids in identifying specific user-related problems that may be corrected by rescheduling the work load or through system reconfiguration, the company spokesman claimed.

Monitor costs \$2,250 for a single installation through P.O. Box 1885, Houston, Texas 77001.

Property Manager Out for System/34

CHARLOTTE, N.C. — Info Systems of N.C., Inc. has announced a property management software package for the IBM System/34.

The Residential Property Management System reportedly automates rent rolls and rents receivable. It interacts with the company's general ledger and accounts payable systems.

Available on a 30-day trial basis with optional maintenance agreements, the system is priced at a one-time fee of \$15,500 from the vendor through Box 18466, Charlotte, N.C. 28218.

Every payday, ADP pays 6,000,000 people at 80,000 companies nationwide.



Stan Domalewski is Director of Management Information Systems for Brinks, Inc. He's been around computers and payrolls long

enough to know what's worth-while. And what isn't.

"The best thing in the world is to put your payroll on somebody else's computer.

"There is absolutely no benefit to processing payroll in-house. The deadlines can kill you. The data entry load is unbelievable. And if you don't have redundancy in your hardware, and it goes

down, you have real trouble with a capital "T."

"ADP comes through every time. They do the collection. They do the consolidation. The closest my computers get to payroll these days are after-the-fact-audits.

"ADP delivers a finished product. They can go from worksheet to completed check in less than 24 hours. The balanced quarterly tax information I get is a life saver. And if a glitch or two should pop up, ADP has proven to be very responsive.

"With ADP doing payroll, I can put my computers to better use for Brinks. And I get the chance to do some of the things I like to do."

Stan Domalewski and

Brinks, Inc. are valued clients of ADP. They are also proof that it pays not to process payroll on your own computer.

For more information on how to free your computers from tasks like payroll, accounts payable and receivable, general ledger and financial reporting, and others—call ADP toll free, at 800-526-7474. In New Jersey, call collect at 201-472-2222. Or write to ADP, 405 Route 3, Clifton, NJ 07015.



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Survey Describes Packages For CP/M, MP/M and Unix

CHERRY HILL, N.J. — Data Decisions, Inc. has released a survey of mathematical, statistical and scientific software products.

The report describes 65 products — from 31 vendors — that run on mainframes, minicomputers and microcomputers based on Digital Research, Inc.'s CP/M and MP/M and Bell Laboratories' Unix operating system.

The survey covers packages used for statistical analysis, simulation, mechanics and engineering design, physics, electrical engineering, chemistry, biology, metallurgy, geology and geophysics. Products are

listed in a quick-reference, dot-chart summary index and in a consistently formatted product description that presents the key characteristics of each package.

Entries for each description include the general purpose of the package, its intended audience, host software and hardware, installation information, unique package functions, extra-cost options and a list of all license prices quoted by the vendor.

"Report 4-CD," the survey of mathematical, statistical and scientific software, is available for \$25 from Data Decisions, 20 Brace Road, Cherry Hill, N.J. 08034.

Blis/Cobol Gets Updated for DG

WINTER PARK, Fla. — Information Processing, Inc. has announced a new version of its Blis/Cobol operating system for Data General Corp. Nova and compatible systems.

Version 5.1 of the on-line, multi-user operating system is said to be highly optimized in the memory management area, resulting in increased throughput of existing Cobol programs on 64K-byte systems, 128K-byte extended bit systems and mapped memory systems of up to 2M bytes.

Blis/Cobol reportedly now provides for the reading and writing of magnetic tapes in the streaming mode.

Single-user pricing starts at \$488 from the firm at 1850 Lee Road, Winter Park, Fla. 32789.

Billing Package Fits System/38

ROSEVILLE, Calif. — New Generation Software has announced a multi-user billing and security package for the IBM System/38.

Profit/38 was designed for use in service bureau, multidivisional or departmental operations. The package, which reportedly is oriented to the nontechnical end user, features automatic billing to remote users or divisions, real-time review of detail records, variable billing structures and "what if" billing structure analysis and forecasting.

The package costs \$4,950 from New Generation Software at 341 Lincoln St., Roseville, Calif. 95678.



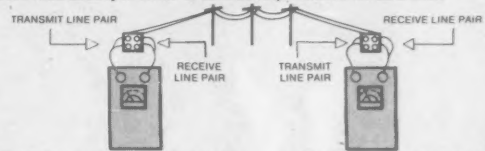
'We Must Modernize, Hartigan. Some People Have Faith in One Thing, Some in Another.'

The very word "teleprocessing" has the ring of urgency, a tool to provide quick response in a dynamic data processing environment. So why do most TP monitors available for IBM 4300 and 370 systems take up to 2 years to develop an application and several weeks to make even minor changes? One reason is that some systems don't support online interactive development. Some have such a complex operating system interface that only the most experienced system programmers can communicate with the system. And some force you to waste time and computer resources using separate development and production systems because they don't offer a comprehensive storage protection scheme.

COM-PLETE from Software AG is

TP-260 DATA LINE TESTER

The TP-260 Data Line Tester offers the user the ability to test both dedicated and dial-up telephone lines and get a quick indication of suitability for data transmission. The unique design of the TP-260 is such that these tests can be carried out by unskilled persons and results are read directly in terms of tariffed requirements for data lines.



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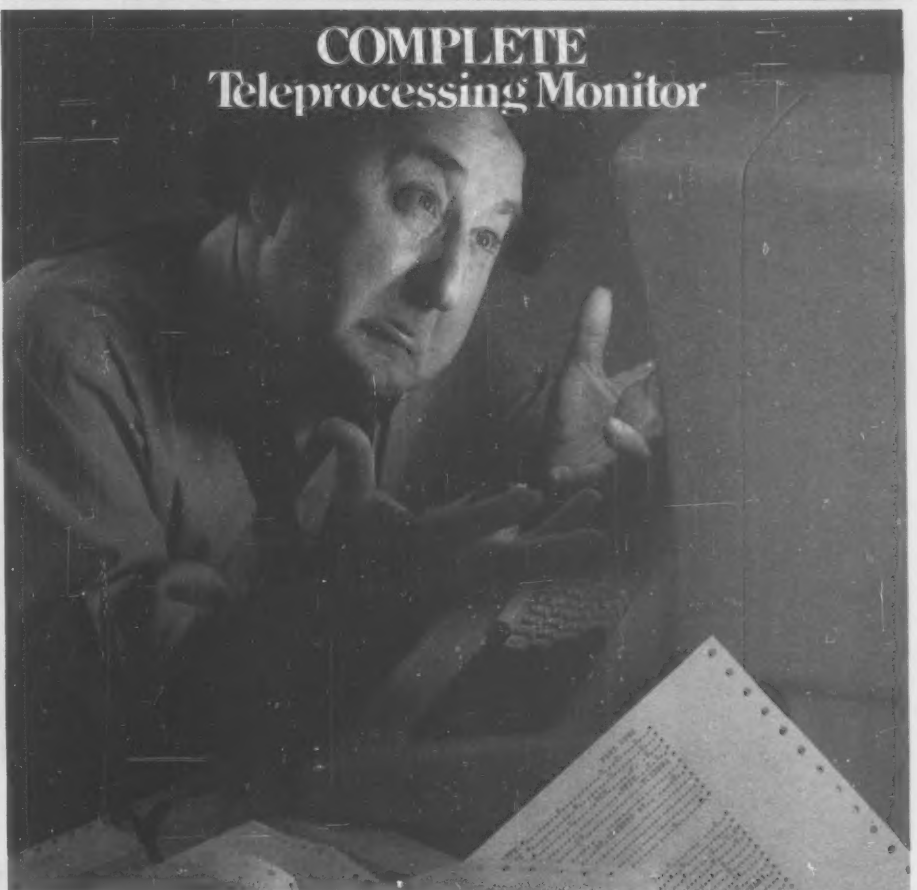


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If you're getting nowhere fast with a conventional TP monitor, or are evaluating alternatives for a new 4300, consider the COM-PLETE alternative from Software AG.

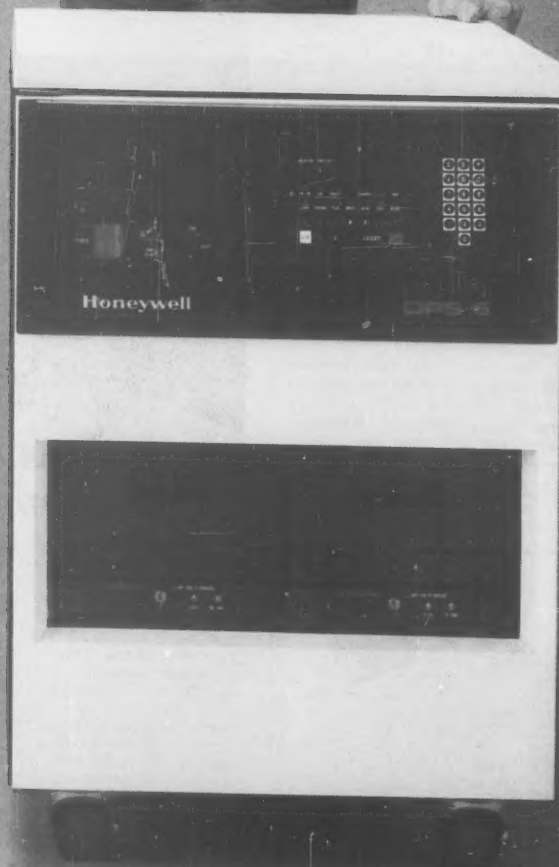
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List Mailing Information

Geographic Data Bases Out

DEERFIELD, Ill. — N4 Transportation Systems of Canada, Ltd. is offering three geographic data bases. The data bases, the vendor said, can be used on any computer system.

The Standard Statistical Data Location Register lists 15.5M bytes of data and contains more than 130,000 files listing location name, county, state abbreviation, Zip Code and other information. The data base costs \$7,500 for a perpetual license.

A similar data base, which includes the Department of Commerce's federal information processing standard codes, National Motor Freight Traffic Association, Inc.'s standard point location codes and the U.S. Postal Service's Zip Codes,

costs \$950. A standard location Zip Code data register costs \$650. Each of the data bases costs \$400 more if they are recorded on IBM diskette media or media compatible with Digital Research, Inc.'s CP/M operating system.

The vendor is located at 708 Juneway Ave., Deerfield, Ill. 60015.

Finance Tool Enhanced for IBM

EAGAN, Minn. — Albert Lea Computer Services, Inc. has announced a new release of its creative financing amortization system for the IBM System/34 and System/38.

The new release includes an annual percentage rate, a spokesman said.

Data Collection Routine Added to Graphics Service


FAIRFIELD, N.J. — The Rapidata Division of National Data Corp. has announced the addition of user data collection and data manipulation routines to its interactive Graphics service.

The user data collection routine eliminates the need to write an inter-

mediate access file between Graphics and an external data base. Any data base that can be read in Fortran can be directly accessed from Graphics, a spokesman said.

The data manipulation routine permits data being used in a graph or chart to be manipulated without leaving the Graphics environment. Data can be added, subtracted, multiplied or divided by another data series or by a constant, according to the vendor spokesman.

Costs are based on standard computer resource usage costs and standard charges for special handling, the spokesman said from 20 New Dutch Lane, P.O. Box 1049, Fairfield, N.J. 07006.



SNA or BSC

The Telex 476...the Stand Alone Penny Pincher for 3270 Users

Now there's a low cost keyboard display station and printer for remote stand alone 3270 environments. It's the Telex 476 and it's the most economical 3270 workstation for both single-station or clustered environments.

The Telex 476...

- Is 100% compatible with the IBM 3276.
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'Datacalc' Update Fits Datasystems

SALT LAKE CITY, Utah — Data-trend, Inc. has announced Release 2.0 of Datacalc, its electronic spreadsheet for Digital Equipment Corp.'s Datasystems.

Capabilities of Release 2.0 include variable column widths, three-dimensional spreadsheet interconnect, 132-col. display, new functions and more display-format options, a company spokesman said.

Datacalc is said to allow spreadsheet development in such areas as fiscal planning, corporate consolidations, depreciation schedules and price schedules.

The software can be used on DEC's entire line of commercial Datasystems, a vendor spokesman said. The DEC VAX/VMS version of Datacalc costs \$1,895. The CTS-500 version is \$1,295 and the CTS-300 version is \$895. The vendor is located at 395 Ironwood Drive, Salt Lake City, Utah 84115.

Package Targets Fleet Operators

LOUISVILLE, Ky. — Bialous Systems, Inc. (BSI) has unveiled a computer software package designed to monitor and reduce maintenance costs for vehicle and equipment fleet operators.

The package, Tools, reportedly will run on any Hewlett-Packard Co. HP 3000 series computer and is suitable for multiple fleets and repair facilities. The system tracks every service area, including repairs, parts, maintenance and fuel usage. It reports individual and total operating cost per vehicle or equipment unit in either dollars per mile or dollars per hours of operation, the vendor said.

The program is said to have direct applications for autos, trucks, boats, airplanes, earth-moving equipment and related machinery.

The license fee for Tools is \$25,000 and includes 40 hours of training and implementation assistance. BSI support services include custom modifications, phone-in and on-site consulting. More information is available from BSI, 10101 Linn Station Road, Louisville, Ky. 40223.

Icot VTS Version SNA-Compatible For 3270 Users

MOUNTAIN VIEW, Calif. — Icot Corp. has unveiled a Systems Network Architecture-compatible version of the Icot 35X Virtual Terminal System (VTS) and an enhanced version of its Ascii terminal product for users of IBM 3270 applications.

The Icot VTS reportedly emulates the functions of an IBM 3274 Model 51C control unit, plus it is said to allow for expansion of 3270 networks.

The product is available in two models: the Model 351 six-port system and the 352 12-port system. These products are priced at \$5,800 and \$7,600, respectively, a spokesman said.

The Icot 700 terminal includes support for a serial Ascii printer and was designed to meet the requirements of the IBM 3278 Model Group 2. It is said to operate in conjunction with the Icot VTS to provide emulation of an IBM terminal, and it includes a detachable keyboard, calculation mode, terminal configuration menu, two screen colors and on-board diagnostics. This product is priced at \$1,095.

Further details are available from Icot headquarters at 830 Maude Ave., P.O. Box 7248, Mountain View, Calif. 94039.

Cluster Controller Emulates IBM 3274

CUPERTINO, Calif. — A remote cluster controller, said to be functionally equivalent to IBM's 3274 controller, has been developed by The Braegen Corp.

The Model 8410 is said to integrate large DP environments with local personal computing needs by incorporating the personal computing function into the controller itself in the form of a 16-bit microprocessor-based module, according to the vendor.

Up to 16 Braegen Model 8420 Display Stations and peripheral devices can be connected to a single 8410 to gain access to the data and functions of an IBM host system.

The basic 8410 comprises a Braegen 8400 Remote Cluster Controller, featuring a 16-bit Intel Corp. 8086 processor with 128K bytes of random-access memory. System memory may be expanded to 640K bytes with two optional 256K-byte boards, the vendor said.

Model 8400 prices start at \$6,700 and the Model 8410 begins at \$10,000. The 8420 Display Station costs \$1,500. Lease rates are available from 20740 Valley Green Drive, Cupertino, Calif. 95014.

No Clear-Cut Winner Seen In Local Net Tech Battle

By Bruce Hoard
CW Staff

The winds of war have been shifting in the battle of local network technologies, but there is still no clear-cut winner.

The war started almost three years ago with the introduction of Xerox Corp.'s

Ethernet. Roughly coinciding with that event was the emergence of office automation and the realization that it would rapidly spawn a huge marketplace for computer and communications products.

Xerox made its Ethernet specifications publicly available for less than \$1,000, hoping aggressive young companies would duplicate them and popularize the technology to the point at which it became a de facto standard. That is what happened. Young companies like Ungermann-Bass, Inc. and 3Com Corp. jumped on the Ethernet-compatible bandwagon and it looked as though the product was headed for unqualified success.

Xerox was not looking to get rich from selling Ethernet. David Liddle,

then Xerox vice-president and general manager of its Office Systems Division, described Ethernet as being a "pick-and-shovel technology." He made it clear that the company saw Ethernet as

a handy hook for the more lucrative terminal products Xerox hoped to sell.

It was not long before competitors appeared on the horizon. Companies like Wang Laboratories, Inc., Sytek Corp. and Amdax Corp. burst upon the scene with broadband local-area networks that packed more bandwidth and could move more simultaneous data than the baseband-oriented Ethernet.

All of a sudden the Ethernet bandwagon started hitting some bumps as the broadband advocates hammered away at its weaknesses. It could only transmit one message at a time, and future prospects for voice transmission were bleak, they contended. Furthermore, it could not carry video signals, thus precluding its use for teleconferencing, another hot new technology.

Perhaps the cruelest anti-Ethernet

(Continued on Page 70)

Analysis

Expandable to 80 Autoanswer Modems

Multiple-Modem System Offered

SAN JOSE, Calif. — A rack-mounted, multiple-modem system from Anderson Jacobson, Inc. (AJ) offers a choice of modular equipment that is expandable from one to 80 AJ autoanswer modems.

The Series 8 system consists of AJ triple-modem cards, high-speed modem, modem chassis and shelving, power supply, blower fan and two sizes of cabinets. Equipment can be purchased and configured separately to suit a range of dial-up network communications needs.

The system offers data communications over voice-grade telephone lines compatible with Bell Laboratories 212A and Racal-Vadic, Inc. VA 3400 series modems at 1,200 bit/sec and Bell 103/113 modems at 300 bit/sec. At 4,800 bit/sec, the shelf-mounted AJ 4048 full-duplex modem offers communications over the two-wire switched network, according to a spokesman for the vendor.

Prices are as follows: AJ 1259-RM triple-modem card, \$850; M8 chassis, \$380; power supply, \$160; blower fan, \$295; five-

chassis cabinet, \$565; and 10-chassis cabinet, \$725. AJ is headquartered at 521 Charcot Ave., San Jose, Calif. 95131.

Interface Joins PS 300, IBM 3278

SALT LAKE CITY, Utah — An interface for the Evans & Sutherland Computer Corp. (E&S) PS 300 three-dimensional graphics system and the IBM 3278 terminal has been announced by E&S.

The PS 300/IBM 3278 Interface, designed to interface most IBM 3274 A, D and C series control units to the PS 300, is said to permit high-speed transmission of data.

Effective throughput of binary vector data may approach 56K bit/sec, a spokesman said.

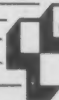
The unit costs \$7,500 from the firm through P.O. Box 8700, 580 Arapeen Drive, Salt Lake City, Utah 84108.

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Emulator Program Announced for IBM Micro

SEATTLE — Walker Rich and Quinn, Inc. has announced an emulator program for the IBM Personal Computer that gives it most of the attributes of a Hewlett-Packard Co. HP 2622A CRT terminal.

PC 2622 is designed for those who wish to use the Personal Computer as a terminal to the HP 3000, although it may be used with most computers that support Ascii asynchronous communications, according to a vendor spokesman.

The program uses all available memory in the IBM Personal Computer and supports up to 640K bytes of "display memory," which is allocated in small fixed-length segments so that short lines use a minimal amount of memory, the vendor said.

PC 2622 is compatible with HP's V-3000 system, providing programmed function keys with on-screen labels. The function key definitions and labels may be downloaded from the host computer

or defined through the keyboard, and they are saved on disk along with other configuration values, a vendor spokesman said.

PC 2622 requires an IBM Personal Computer with at least 64K bytes of

memory, one disk drive and a monochrome or color monitor.

The program costs \$295 from Walker Rich and Quinn at Suite 201, Lake Union Place, 1914 N. 34th St., Seattle, Wash. 98103.

Multiplexer Out for V.24 Interface

ANAHEIM, Calif. — Sigma Information Systems, Inc. has announced a dual wide asynchronous eight-line multiplexer for EIA/CCITT V.24 interface.

Supporting RS-232C terminals or remote lines, the SCD-DZV11 is said to plug directly into Digital Equipment Corp.'s LSI-11, Q-bus-based systems. The microprocessor-based multiplexer emulates the DEC Uni-

bus DZ11 eight-channel multiplexer and has jumper-selectable address and vector assignments.

The unit plugs directly into a dual Q-bus slot, has stop bits, modem control and programmable speed for character length. Compatible with DEC operational and diagnostic software, the SCD-DZV11 costs \$935 from 6505 Serrano Ave., Anaheim, Calif. 92807.

Display Station Family Introduced For IBM 3278

FORT LAUDERDALE, Fla. — The Computer Products Division of Racal-Milgo, Inc. has introduced display stations said to be compatible with the IBM 3278 Series 2, 3, 4 and 5.

The Model 8278 Display Station family emphasizes application flexibility and large-screen formats. The family has four available models that operate in Systems Network Architecture (SNA) and non-SNA network structures and reportedly can be attached to the Racal-Milgo 4270 Series of IBM-compatible remote and cluster controllers.

Standard features include off-line testing, security key lock, screen protector feature, reverse video and operational status and mode display.

Prices range from \$1,999 to \$2,556 with lease plans available from the firm at 6250 N.W. 27th Way, Fort Lauderdale, Fla. 33309.

IBM 3279 Terminal Gets Color Monitor

COVINA, Calif. — Conrac Corp. has announced a 19-in. color monitor for users of IBM's 3279 color CRT terminal.

Called the Model 7211, the high-resolution monitor can be used for supplementary viewing stations or as a replacement for the 13-in. screen supplied by IBM.

The 7211 costs \$3,740, the vendor said from 600 N. Rimsdale Ave., Covina, Calif. 91722.

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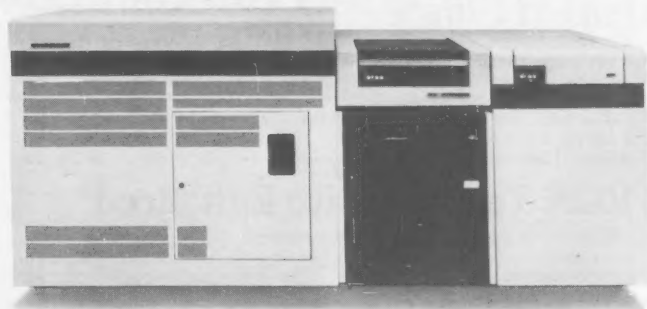
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PBX Modem for Voice, Data Targets Automated Office

NEWPORT, R.I. — A private branch exchange (PBX) modem designed to provide voice and data communications capabilities for the automated office has been introduced by Avanti Communications Corp.

Comnet 48 reportedly allows personal computers, word processors and intelligent terminals to communicate with each other or with central processors utilizing the switching and contention capability of an existing PBX system.

The modem, which plugs directly into an existing telephone wall jack, provides full-duplex, two-wire synchronous or asynchronous data com-

munications capability at 4,800 bit/sec. The unit also operates isochronously at 300 to 1,200 bit/sec.

The unit costs \$975 with 90-day delivery from the firm at Aquidneck Industrial Park, Newport, R.I. 02840.

RCA Telex Service Enhanced

NEW YORK — RCA Global Communications, Inc. has announced an enhancement to its computer-to-telex service that allows real-time conversation between communicating word processors or computers and any telex or TWX machine.

The service allows a computer or WP operator simply to type in his ID

For IBM System/34, 38

Protocol Converter Offered

DALLAS — May-Craft Information Systems, Inc. is distributing the ATS 1051 protocol converter for IBM System/34 and System/38 processors.

The device allows microcomputers and Ascii terminals to emulate

IBM's 5251 terminal. The unit works in conjunction with an installed communications port and may be either direct connected or used remotely via modems, the vendor said.

The device can support the IBM Personal Computer, Apple Computer, Inc. Apple II and Apple III microcomputers, as well as other systems based on Digital Research, Inc.'s CP/M operating system, according to the vendor.

The ATS 1051 costs between \$3,100 and \$7,000, the vendor said from 3412 Beltwood Pkwy. S., Dallas, Texas 75234.

No Winner Seen In Local Net War

(Continued from Page 67)

blow was delivered by Strategic, Inc., a California-based market research firm. Strategic President Michael Killen authored a report claiming Ethernet would fail totally and lead Xerox into bankruptcy. It appeared as though the local-area network battle had decidedly swung against Ethernet.

Then there was a cooling-off period. Few users were actually buying local-area networks because they were not sure which technology was best. Aggravating the problem was the lack of standards. Nobody wanted to buy a system that would not be able to communicate with other office automation products. When the smoke cleared, there was no winner.

Things picked up again when large communications vendors such as Rolm Corp. and Northern Telecom, Inc. started touting their private branch exchanges (PBX) as the most sensible, economical hubs for the automated office. All users had to do was attach a data add-on unit and they would have a central switch to control voice and data flows throughout the office.

What made the PBX argument so compelling was its reliance on the nationwide installed base of twisted-pair wiring, which is commonly used to connect telephones. With all that wiring in place, the PBX vendors pointed out, why bother with the expensive hassle of wiring buildings with the coaxial cable used by both baseband and broadband local-area networks? Just hang your terminal off the same wiring that connects the telephone at your desk, they said.

The fighting started again. This time it was local-area networks (baseband and broadband) vs. PBX. Currently, the common wisdom seems to be that PBXs and local-area networks will coexist with PBXs handling the lion's share of the terminal-to-terminal office traffic. That leaves local-area networks relegated to handling bursty high-speed, high-volume computer-to-computer traffic.

Of course, PBX vendors are thrilled by such a possible scenario because it would make them the central focus of the workstation-based automated office that Xerox initially hoped to control with Ethernet. Northern Telecom is pressing its advantage by selling sophisticated terminal products like Displayphone.

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For Gcos 6 Operating Systems 'NP' Tool Aimed at DPS 6 Users

NEW YORK — Advanced Computer Techniques Corp. has announced Version 2 of its Network Processor (NP) software tool kit for data communications. The package is said to feature message-switching facilities and a modular structure.

Concentrator Aids X.25 Net

CHATSWORTH, Calif. — Micom Systems, Inc. has announced the Micro800/X.25, a data concentrator pad that packetizes data from up to 16 asynchronous terminals for transmission over a single phone line to a public or private X.25 packet data network.

The unit reportedly smooths the transition to packet switching by storing user-selectable, preprogrammed channel profiles that can be altered or replaced with options presented to the user in a menu format. In addition, the channel configuration data can be down-line loaded from a central site, the vendor said.

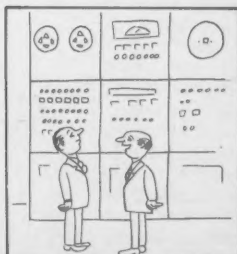
The Micro800/X.25 costs from \$2,050, the vendor said from 20151 Nordhoff St., Chatsworth, Calif. 91311.

Data Centers Get Monitor

RICHMOND, Va. — Digital Techniques, Inc. has introduced a data center monitor said to be capable of monitoring all electrical and environmental parameters of any computer facility.

The DTI Model 428 also monitors environmental and security support systems such as fire, water, air conditioning, temperature and humidity. Expansion capabilities through remote signal monitors prevent obsolescence, according to a vendor spokesman.

The data center monitor is available for a starting price of \$8,975 from Digital Techniques, Inc. through P.O. Box 3128, Richmond, Va. 23235.



'And This Is Our Accounting Department.'

Aimed at users of Honeywell, Inc. DPS 6 minicomputers with Gcos 6 operating systems, the software is said to allow communications with any other hardware equipment in a network.

NP's features reportedly include message routing based on logical destination station address, message header or message content;

local disk storage for message transaction queuing; and multiple host, special protocol and terminal support.

The software costs \$100,000 for a one-time license fee and includes a three-month warranty.

The firm is located at 16 E. 32nd St., New York, N.Y. 10016.

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V.P. Management Information Systems
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"One reason the ARC network has been so effective for Hyatt is because it's easy to expand," says Regan. "Hyatt has had phenomenal growth, and the ARC has kept up. When more people needed the system to do more work, we simply added to the network."

The ARC local area network can be expanded virtually without limit by simply plugging in additional Datapoint processors, printers, storage disks, and terminals. Each new processor adds power to the

network so new users get the same fast response the original users were getting. Companies can closely match the power of an ARC system to their needs, expanding in small, inexpensive increments instead of buying "more computer than they need" in order to have room for growth.

What's more, Datapoint systems can be expanded or upgraded without replacing software. "We run some programs on ARC networks that were originally written for our first Datapoint computer more than ten years ago," says Regan. "That means we didn't lose any of the money we invested in programming and training. And it made the growth steps easy on our people. The changeover to the ARC network was accomplished in only two days."

No matter how far an ARC system is expanded, all the users can have access to all the data except where security precautions are installed. So even though more and more people are using more and more computers, there's never a

need to duplicate files.

"At present, Hyatt operates forty-five ARC systems," Regan says. "Others are in the planning stages right now. On the operations side we use them for accounting, reservations, and group sales. At Corporate we use them for accounting and for systems development. Obviously, we depend on them heavily. They're like the meters where we check our own financial performance. They simply have to work. And they do."

"Hyatt has stayed with the ARC system because it's been cost-effective. That's the bottom line. I can recommend a certain system to a hotel, but in the end, the system has to sell itself. And keep selling itself after it's installed. Our Datapoint ARC systems have done that."

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Catalog Covers Publications In Telecommunications Field

BOSTON — A catalog of telecommunications publications has been published by Economics and Technology, Inc. (ETI), consultants in the area of telecommunications rates and services.

The catalog lists the current offerings of ETI's publications division. Included are descriptions of the firm's new "ETI [Local Access and Transport Areas] Lata Handbook," the two-volume "Intercity Rates and Services Handbook," the monthly "Trends in Communications Regulation" and other publications.

Each publication is prepared by ETI's staff of regulatory and tariff analysts. The catalog is free to telecom-

munications managers and other professionals from ETI, 101 Tremont St., Boston, Mass. 02108.

Channel Switch Fits IBM CPUs

MILLBRAE, Calif. — Digital Industries, Inc. has introduced a modular data channel switch for use with IBM and compatible processors.

The 3403 Peripheral Switch allows users to pay only for the switching capability without the additional overhead characteristics of matrix-type switches, a vendor spokesman said. Costs may be reduced by 75%, the spokesman claimed.

The data switch may be purchased for \$2,350 and leased for \$55/mo. More information is available from The Bridge, Inc., Suite 219, 199 California Drive, Millbrae, Calif. 94030.

Cable Tie Boasts Instant Hookup

BELLEVUE, Wash. — IQ Technologies, Inc. has announced the SC 821 Smart Cable.

The cable is reportedly an intelligent RS-232 interface cable that instantly hooks up any computer system with any peripheral with the flick of a switch. The unit looks like an RS-232 interface on both the computer and peripheral ends. The unit eliminates the need for cable design, breakout boxes and an engineering effort when connecting equipment, the vendor claimed.

The smart cable costs \$245, the vendor said from Suite 308, 11811 N.E. First St., Bellevue, Wash. 98005.

Modem Works At 2,400 Bit/Sec

MANSFIELD, Mass. — Codex Corp. has announced the 224 Modem, designed for full-duplex communications on two-wire circuits.

The unit transmits data at 2,400 bit/sec and is compatible with Bell Laboratories' 212 standard. The unit also meets the proposed CCITT V.22 standard for full-duplex 2,400 bit/sec communications on two-wire circuits, the vendor said.

The 224 Modem costs \$1,195 from Codex at 20 Cabot Blvd., Mansfield, Mass. 02048.



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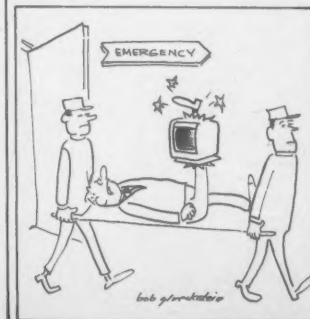
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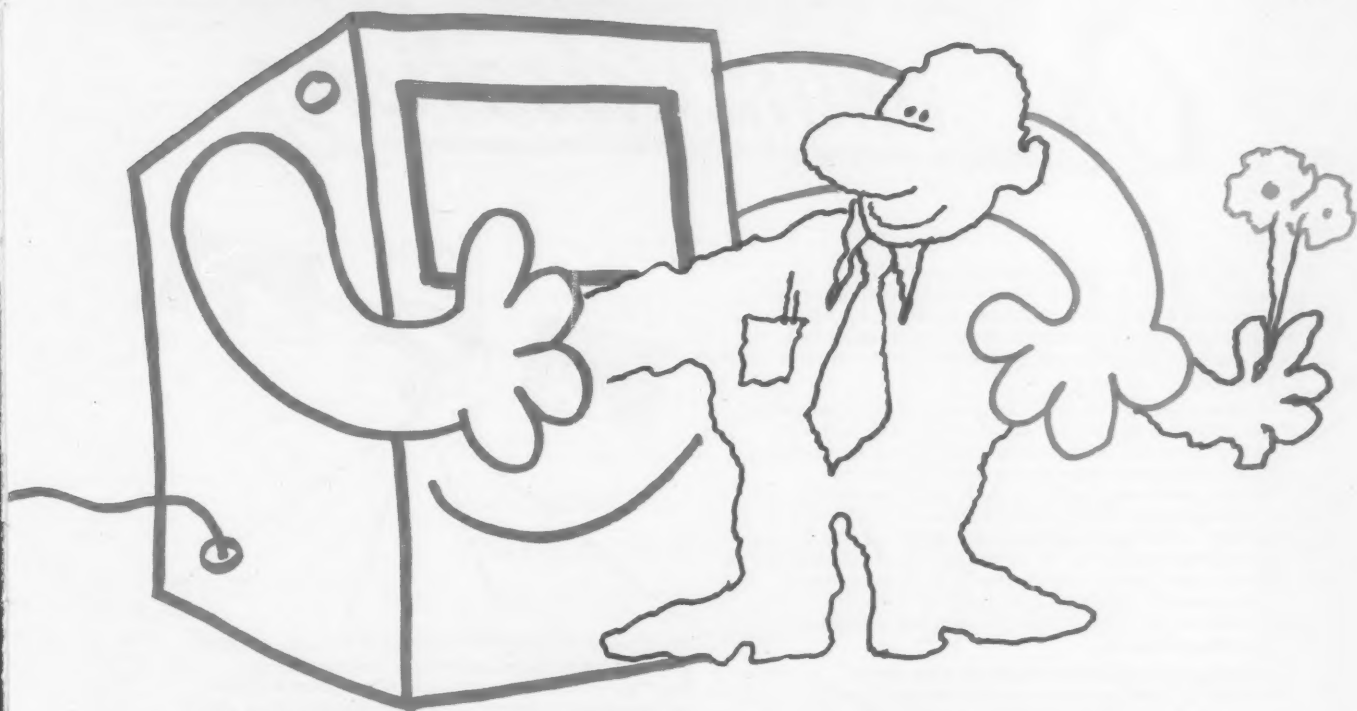
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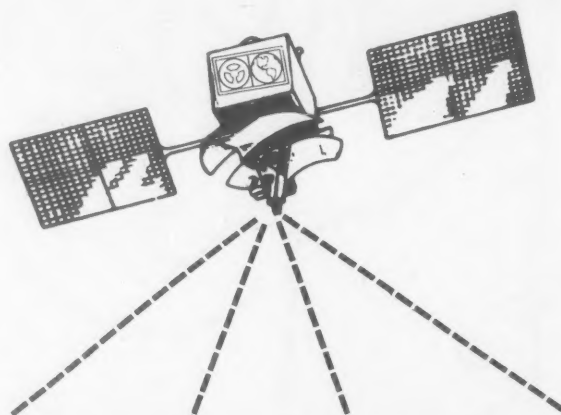
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We recently did a study of *Computerworld* subscribers to determine their level of involvement and interest in communications. Of the 84% now using or planning to use communications equipment and services, 72% are personally involved in its selection and/or implementation. We found that these subscribers depend on *Computerworld* for communications information and prefer its coverage by more than 4 to 1 over the next publication in the field. This segment of our audience has a critical need for in-depth information on the constantly changing technology of communications.

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Remember to look for *Computerworld On Communications* on May 18th and again on September 28th (advertising deadlines April 8th and August 19th).

For advertising information on *Computerworld On Communications*, call Bill Dwyer, National Accounts Manager at (617) 879-0700 or your local *Computerworld* sales representative.

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As Well as Letter-Quality Printers Diablo Unwraps Ink Jet, Thermal Units

HAYWARD, Calif. — Diablo Systems, Inc. has jumped into the nonimpact printer market with both feet by unwrapping a 20 char./sec ink jet unit and a plain paper thermal transfer device that prints up to 6½ page/min.

The company also introduced its first two letter-quality printers that do not use a daisywheel. The Models 11A and 31A matrix printers generate 100 char./sec and are capable of producing near-letter-quality line and block graphics.

In a third announcement, the company reported it has made its Model 630 matrix printer compatible with IBM's Personal Computer.

The Electronic Printing Machine (EPM) contains a raster-line print head that produces 200 by 200 dot/in. resolution text and graphics. The device communicates asynchronously a raster line — or 1,680 dots — at a time. It produces portrait and landscape images, business graphics and gray-scale features.

Unlike a direct thermal printer's technique of using heated print wires to burn its dot patterns through a layer of metallic coating, the EPM generates its images by energizing the thermal head elements that, in turn, cause the transfer of black ink from the ink donor film (IDF) roll onto the paper with a pressure roller. Each IDF roll produces up to 1,300 pages, a spokesman said. The unit, which has a decibel level of 52, comes standard with an integrated sheet feeder that holds up to 250 sheets that meet U.S. and European A4-size sheet requirements. Users can hand feed envelopes, labels and index card stock. The EPM carries a single-quantity price tag of \$4,995.

Dubbed the Series C, the company's ink jet printer employs drop-on-demand technology to integrate text and bit-mapped

Wang Cuts Cost Of Professional

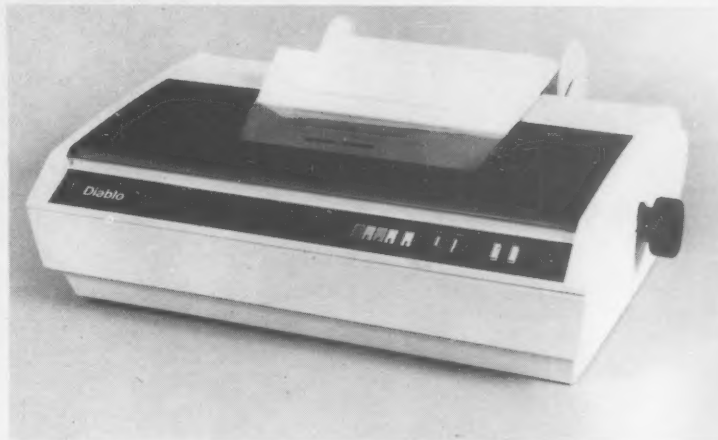
LOWELL, Mass. — Setting the stage for a series of upcoming Professional Computer enhancements, Wang Laboratories, Inc. has reduced prices on its Professional Computer and has lowered the cost of memory and software peripherals. Three unbundled additions to the Professional Computer, a 10M-byte Winchester disk drive and a bundled software package were also unveiled.

The announcement is "indicative of Wang's determination to remain a major force in both the professional computer and office automation areas," according to Wang President John F. Cunningham. "There is no doubt that competition in the personal computer marketplace has really become more intensive in recent weeks," he added.

In addition to reducing the base price of the Professional Computer from \$2,695 to \$2,595, Wang also announced three new versions. All systems reportedly include an enhanced Intel Corp. 8 MHz 8086-based system — which reportedly provides 16-bit internal and 16-bit external data paths — and MS-DOS, diagnostics and interpretive Basic.

New versions of the Professional Computer include the Models PC-003B, priced at \$3,790; PC-004A, at \$4,030; and PC-005A, at \$6,400. All are unbundled systems, a spokesman said. The PC-003B includes a character display adapter with

(Continued on Page 80)



Diablo Systems Series C

graphics in seven colors. For color graphics applications, the device can place up to 120 dot/in. and up to 1,024 by 1,024 dot/page in approximately four minutes, according to the company.

The nonimpact device uses a 16-nozzle print head to lay down four basic colors — cyan, magenta, yellow and black. From these four a total spectrum of seven is pro-

duced including violet, green and red. On standard paper, the ink reportedly takes one second to dry. The unit's cartridges, which each contain 2.5cc of ink, have a life expectancy of 250,000 char.

Equipped with a Centronics Data Computer Corp. parallel interface, the Series C also accommodates standard A4-sized cut

(Continued on Page 78)

Microdata Restructures Reality Line Into Single, Expandable Base System

IRVINE, Calif. — Microdata Corp. has restructured its Reality line of small business systems into a single system that can be expanded in a building-block fashion.

The base system is called the Model R4700, which includes 64K bytes of main memory, 32M bytes of disk storage and a single density 1,600 bit/in. streaming tape drive. The base system costs \$26,985, not including printers and terminals, the vendor said.

The base system can be expanded to include up to 512K bytes of main memory with a performance-enhanced processor. In addition, disk storage on the Model R4700 can be expanded to 514.8M bytes.

Various peripherals, such as word processing terminals, parallel and letter-quality printers, can be added to the system, the vendor said.

A mid-range Model R4700 Reality system, which includes 128K bytes of memory, 48M bytes of disk storage, a 45 in./sec, 1,600 bit/sec tape drive, 150 line/min printer and a Prism IV terminal, costs \$43,210. A similarly configured Series 6000 system in the older Reality line would have cost the user \$54,700, the vendor said.

Microdata is a subsidiary of McDonnell Douglas Corp. and is located at 17481 Red Hill Ave., Irvine, Calif. 92714.

Vector Graphic's Vector 4 Processor Out in 10M-Byte Hard Disk Version

THOUSAND OAKS, Calif. — Counterpunching the introduction of IBM's hard disk-based XT microcomputer, Vector Graphic, Inc. has unwrapped a 10M-byte hard disk version of its Vector 4 8/16-bit dual-processor business computer that is priced at \$5,995.

The Vector 4/40 can reportedly be used as a stand-alone computer or as a workstation in an office network with the vendor's recently announced Local Interactive Network Communications system, according to a spokesman for Vector Graphic.

It is said to come with both Digital Research, Inc.'s CP/M and CP/M 86 operating system software, word processing, spelling, list management, spreadsheet and graphics software, the vendor spokesman said.

The Vector 4/40 is based on both the Zilog, Inc. Z80 microprocessor and the Intel Corp. 8088 microprocessor, the spokesman added.

More information on the product is available from Vector Graphic at 500 N. Ventu Park Road, Thousand Oaks, Calif. 91320.



Vector Graphic 4/40



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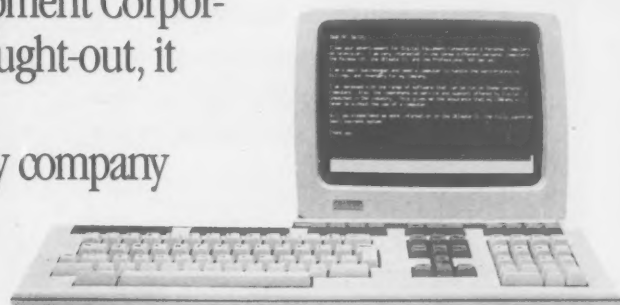
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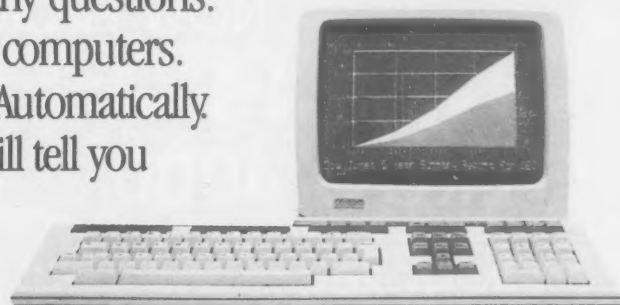
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Motorola 68000-Based System Announced for CP/M 68 Users

SAN FRANCISCO — The Compupro Division of Godbout Electronics has come up with what they claim is the first Motorola, Inc. 68000-based system for business applications running under Digital Research, Inc.'s recently released CP/M 68 operating system.

Christened the System 816 Model 68K, the system is configured around Compupro's CPU board. The system features 256K bytes of main memory, expandable to 1M byte, three serial ports and one parallel and one Centronics Data Computer Corp./Epson America, Inc. port, a vendor spokesman said.

It also features 1.5M bytes of the firm's M-Drive/H solid-state disk

emulator, according to the vendor spokesman.

The System 816 Model 68K lists at \$8,995, the spokesman said.

Further information can be obtained from the vendor, which is located at Oakland Airport, Calif. 94614.

System Accesses Financial Info

STAMFORD, Conn. — A financial information workstation featuring on-line access to ADP Comtrend's Videcom Financial Information Service has been announced by the firm.

The Intelligent Comtrend System multifunction graphics workstation is a 16-bit desktop system that holds up to 1M byte of solid-state memory, has an adjustable, 14-in. video monitor and a 98-key detachable keyboard.

Financial Information Service data includes financial futures, foreign currencies, stock index futures, London markets, metals, agricultural futures and options. Historical data on contracts traded since 1968 is also available.

The price for one workstation is \$2,000/mo. It costs \$400/mo for each additional workstation. Purchase prices will be set within a month, a spokesman said. More information is available from 25 Third St., Stamford, Conn. 06905.

Diablo Unveils Thermal Units

(Continued from Page 75)

sheets or roll paper up to 10-in. wide.

Expected to be available in the third quarter of this year, a single Series C costs \$1,295.

The 11A and 31A matrix printers, like the two nonimpact devices, produce both text and graphics. Both printers contain a 2K-byte buffer and XON/XOFF and ETX/ACK protocols.

The 80-col. 11A contains either a parallel or serial interface and uses a nine-needle matrix head to print 9-by-7-dot matrix characters. Price of the unit is \$649.

The 31A is a 132-col. machine that can be fitted with either a Centronics or RS-232C interface. Like the 11A, the 31A produces 9 by 7 characters using a nine-needle matrix print head. A single 31A costs \$950, according to the vendor.

Rounding out the series of announcements was the unveiling of three paper handling systems intended for use with the firm's Models 630, 630 ECS and 630 KSR, the vendor said.

The three products include a low-cost bidirectional tractor feeder, a single tray, electronic cut-sheet feeder and a two-tray cut-sheet feeder. The units are priced between \$900 and \$1,500 and are available in 90 days.

Further information can be obtained from the vendor, located at 24500 Industrial Blvd., Hayward, Calif. 94545.

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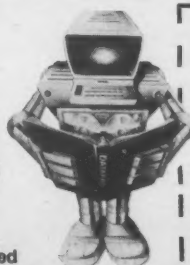
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Printers Offer Special Graphics

WELLESLEY, Mass. — Nissei Sangyo America, Ltd. has announced two dot matrix line printers that offer special graphics effects and near-letter-quality alphanumeric printout.

Capable of generating logotypes and bar codes, the firm's AD 30 and AD 60 can also be used to provide hard-copy output of charts, graphs and plots. The AD 60 can operate at up to 600 line/min and the AD 30 can operate at 300 line/min, the vendor said.

Offered principally to the OEM marketplace, the AD 30 costs about \$3,700 and the AD 60 costs about \$5,000, the vendor said from 40 Washington St., Wellesley Hills, Mass. 02181.

Subsystems Fit Unibus, Q-Bus

SAN DIEGO — Innovative Data Technology (IDT) has introduced two ½-in., nine-track, 1,600 char./in. magnetic tape subsystems for Digital Equipment Corp.'s Unibus and Q-bus computer systems.

The tape subsystems reportedly utilize the vendor's Virgo technology, which runs at 100 in./sec in streaming mode and 12½ in./sec in start/stop mode. The tape transport is available in vertical, horizontal or desktop mounting forms, according to the vendor.

System prices start at \$6,495, the vendor said. Further details may be obtained from IDT, which is located at 4060 Morena Blvd., San Diego, Calif. 92117.

General Ledger System Out For Series/1 Running Pick

PALO ALTO, Calif. — Remote Computing Corp. has released a general ledger system designed to run on its packaged IBM Series/1 systems using the Pick & Associates, Inc. Pick operating system.

Features include on-line maintenance of transactions and master file, effective date posting, automated monthly and annual closing process, customized management reports and user-defined account structures.

Standard reports include daily, weekly and monthly transaction registers, summary and detail trial balances, profit and loss statements, balance sheets and regulatory reports, a spokesman said.

The company offers a Series/1 with the Pick operating system starting at \$60,000. The general ledger system alone costs \$14,000. The company is located at 1076 E. Meadow Circle, Palo Alto, Calif. 94303.

Wang Cuts Professional Prices

(Continued from Page 75)
high-resolution monochromatic display and a second 360K-byte diskette

drive. The PC-004A comes with a character and graphics display adapter with high-resolution monochromatic display and a second 360K-byte diskette drive. The PC-005A includes the hardware components mentioned above, along with a 10M-byte Winchester disk drive.

The 10M-byte Winchester disk drive replaces the currently available 5M-byte drive. In addition, resident systems diagnostics said to allow customers to perform on-site diagnostics operations are featured in the new configuration, a spokesman said. Available in June, the drive is priced at \$3,285.

In addition, a bundled software package, said to include Wang word processing, PC-Multiplan and asynchronous communications, is available for a one-time license fee of \$650.

Other major Professional Computer price reductions pertain to memory expansion and workstation emulation options for Wang product family members such as VS, OIS and 2200. The cost of 128K bytes of memory is now \$500, down from \$1,000; the price of 256K bytes has been lowered \$950 and now lists for \$850; and the cost of 512K bytes has been dropped from \$3,500 to \$1,700. Workstation emulation, which includes an adaptor and software, is now priced at \$2,000, a reduction of 20%, according to a vendor spokesman.

More information is available from Wang, located at 1 Industrial Ave., Lowell, Mass. 01851.

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities.
The offer is made only by the Prospectus.

March 18, 1983



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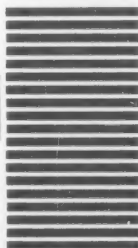
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The Executive Microcomputer Conference and Exposition (EMCE) is sponsored by the Conference Management Group of CW Communications/Inc., publishers of *Computerworld*, *InfoWorld*, *ISO WORLD*, and *PC World*. And it's designed especially for executives who are responsible for the selection

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EMCE gives you a complete conference program and exhibition:

- 48 conference sessions
- 3 days of exhibitions
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- Financial applications
- Special program of personalized instruction
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1. **Early admission** — only conference registrants and advanced registrants will be admitted to the hall between 11 a.m. and NOON on Thursday and Friday.
2. **\$5.00 discount** on admission price at the door.

Register for EMCE now! The Sheraton Centre in New York City is the place; June 23-25, 1983 are the dates. Exposition hours: 11-7, Thursday and Friday; 10-6, Saturday. For more information on the conference and exposition, dial 1-800-225-4698 (In Massachusetts, 617-879-0700) and ask for Louise.

THE CONFERENCE PROGRAM

The Thursday and Friday conference program is divided into four major "tracks," but you are not required to sign up for a particular group of sessions. You may select the sessions you need from any of the 48 sessions available and create a conference program designed to suit your unique

I. For Executives in large corporations who are involved in using micros in distributed data processing or as standalone executive workstations, the EMCE conference program includes:

- **Keynote: Increasing Corporate Productivity via the Personal Computer** — (Thurs.)
- **The Executive/Professional Workstation** — (Thurs.)
- **DDP with Microcomputers** — (Thurs.)
- **The Information Resource Center** — (Friday)
- **The Role of Apple and IBM in Corporate Computing** — (Friday)
- **New Issues of Confidentiality and Security in Organizational Information Processing** — (Friday)
- **Personal Computer Acquisition and Implementation Strategies** — (Friday)
- **Compatible Systems and Software for the IBM PC** — (Friday)

II. For Executives who are concerned with the selection and use of microcomputers primarily in smaller businesses, the EMCE conference highlights:

- **Keynote: The Personal Computer: The Mouse that Roared** — (Thurs.)
- **How to Buy a Personal Computer** — (Thurs.)
- **Spread Sheet/Financial Applications** — (Thurs.)
- **New and Future Trends in Personal Computing** — (Thurs.)
- **Word Processing Packages for Personal Computers** — (Friday)
- **DBMS on Personal Computers** — (Friday)
- **A Look at Integrated Software Packages** — (Friday)
- **Panel: Executive Personal Computer Success** — (Friday)

information needs. You may even choose to attend one day instead of two if you want. A detailed agenda will be sent to you prior to the conference for your advance planning, so you don't waste a minute!

III. For Executives who wish to keep up with changing microcomputer technologies in mass storage, business graphics, operating systems and more, the EMCE conference highlights:

- **Keynote: The Future of Personal Computer Software for Business** — (Thurs.)
- **What's New in Peripherals** — (Thurs.)
- **Developments in Personal Computer Business Graphics** — (Thurs.)
- **Mass Storage Capabilities** — (Thurs.)
- **Information Utilities** — (Thurs.)
- **Popular Programming Languages** — (Thurs.)
- **Operating System Selection: 8 to 16 Bit** — (Thurs.)
- **Developments in Networking** — (Friday)

IV. For entrepreneurs, dealers, distributors and systems houses, we'll offer sales and venture capital strategies you won't want to miss. Session highlights include:

- **Keynote: Retail Opportunities in the Personal Computer Marketplace** — (Thurs.)
- **Software Packaging and Distribution** — (Thurs.)
- **Raising Venture Capital for Software and RGD** — (Thurs.)
- **Legal Issues for the Retail Distributor** — (Thurs.)
- **Market Update: Competition from Japan** — (Friday)
- **Successful Training Strategies for Vendors and End Users** — (Friday)
- **Delivering Good Maintenance, Service & Support** — (Friday)
- **Selling the Corporate Account: Problems & Pitfalls** — (Friday)

FREE SATURDAY FEATURE SESSIONS FOR ALL ATTENDEES

FREE Special Feature Sessions for exhibit and conference attendees will be held Saturday, June 25 from 9:00-1:00 p.m. The sessions will focus on professional applications for micros and starting your own home based business or office, and will also discuss the personal computers impact on family life, kids and recreation.

SPECIAL HANDS-ON WORKSHOP

In addition to the main conference program, EMCE will offer a two-day **Executive Microcomputer Workshop** for those professionals who wish to get hands-on experience with an Apple or IBM Personal Computer. The workshop will focus on four specific applications: spreadsheet analysis using VISICALC, data base management using dBase II, graphics and communications. An in-class network will be set up to demonstrate the communications capabilities of personal computers. The two-day seminar will run concurrently with the EMCE Conference Program and will include admission to the exhibits and special feature sessions on Saturday, June 25. The **Executive Microcomputer Workshop** will be sponsored by the Personal Computer Learning Center of New York City and will be held at the Center, located at 1120 Avenue of the Americas, on Thursday and Friday June 23 & 24. Enrollment is limited, so please register early with your choice of hands-on using either an Apple or an IBM PC.

SPECIAL PROGRAM FOR EDUCATORS

For Educators and Administrators, EMCE will hold a special seminar on Saturday, June 25th entitled **Microcomputers in Education** which includes the following sessions designed to suit the unique needs of education:

- **Keynote: Computer Assisted Instruction in Education**
- **Computer Funding and Acquisition**
- **Logo: An Educational Language**
- **Teacher Training**
- **Administrative Applications for Educational Institutions**
- **Educational Computing at Home**



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- ☐ Micros in Education \$ 95
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REGISTRATIONS CANCELLED later than June 15 are subject to a \$50.00 service charge. Registration may be transferred at no charge.

- ☐ Yes! Register me for EMCE (fill out attached conference form)
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Dentists Get Business Aid

OVERLAND PARK, Kan. — Datatrac Corp. has unveiled a small business computer turnkey system designed to increase cash flow, maximize profits and assist dentists in delivering more effective dental care.

The Dental Data System (DDS) features general ledger, billing and receivables, automated patient background and history files, calendar, insurance form preparation, word processing, report writing and automated payment plan software, according to the vendor. The system consists of the DDS software, a Zilog, Inc. Z80-based processor with 64K bytes of memory, two floppy disk drives and a hard-disk mass storage device for fast access to large data files. It also comes with a high-speed color printer for correspondence, the vendor said.

Pricing starts at \$16,750. Further details are available from the vendor at 10600 Mastin, Overland Park, Kan. 66212.

Disk Drive Enhancements Out for Prime Series 50

MENLO PARK, Calif. — Instor Corp. has announced enhancements to its Instor/80 disk drive that reportedly allow users of Prime Computer, Inc. Series 50 computers to exchange and transfer data between Series 50 systems and any IBM or 8-in. disk running under the Digital Research, Inc. CP/M-

Supports All Existing Apple Functions

Intelligent Keyboard Fits Apple II, Apple II+

WILMINGTON, Mass. — Amkey, Inc. has introduced an intelligent, detachable, capacitance keyboard for the Apple Computer, Inc. Apple II and Apple II+ personal computers.

The Pro-100 features 100 keys supporting all existing Apple functions, including horizontal and vertical cur-

sor movement, separate number pad with enter key, auto repeat, relocated reset key, 22 Visicorp Visicalc keys, 25 Apple Basic keys and 18 programmable keys, according to a spokesman.

The Visicalc keys are said to assist the user to access all Visicalc commands through use of one key. The Apple

Basic keys reportedly help the user access Basic commands using one key.

The Pro-100 keyboard comes with a preboot diskette containing Basic disk utilities, keyboard informa-

tion and a word processing and graphics program.

The keyboard costs \$265, including shipping and handling. The vendor is located at 220 Ballardvale St., Wilmington, Mass. 01887.

Impact Printer Targets Banks, Hotels, Restaurants

ALLSTON, Mass. — A 27-column dot-matrix slip/document impact printer suited for banks, hotels, restaurants, municipal agencies and biomedical services is available from Printer Products, Inc.

The Series 270 printer is a stand-alone device said to print documents as small as 3.54 in. by 2.76 in. Standard units print the full 96-char. Ascii set, 10 char./in. at 65 char./sec, using standard interfaces, a spokesman said.

The printer features multiple-copy forms handling, self-test capability, software reset, upper/lowercase and elongated and inverted lines, the spokesman said.

Prices start at \$660 from 24 Denby Road, Allston, Mass. 02134.

Concentrator Enhanced

LYNNWOOD, Wash. — Intermec Corp. has announced an enhanced version of its 9160 port concentrator. The unit is used to interface bar coding hardware with IBM System/38, System/34, Series/1 and Hewlett-Packard Co. HP 3000 processors.

Called the 9160A, the unit features IBM Binary Synchronous Communications, HP 3000-compatible communications and an asynchronous RS-232C, SR-422 or 20mA-current loop interface with Intermec's flexible poll/select protocol, the vendor said.

A basic 9160A comes with 16K bytes of random-access memory, expandable to 64K bytes. A 16K-byte unit costs \$2,995, and the 64K-byte version costs \$3,420. Intermec is located at 4405 Russell Road, P.O. Box C-N, Lynnwood, Wash. 98036.

Correction

The address of Rugged Digital Systems, Inc. was incorrectly reported in a recent product announcement. The firm's correct address is 2895 Northwestern Pkwy., Santa Clara, Calif. 95051.

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Ease Office Automation Acceptance Projects Give OA Cost/Benefit Analysis

By Robert Batt

CW West Coast Bureau

LOS ANGELES — Like many cities across the nation, Los Angeles has been faced with the problem of how to satisfy an increasing demand for services while reducing costs. While office technology is seen by city officials as an effective way of improving productivity, public policy dictates that the introduction of automation must be economically justified.

However, establishing effective cost/benefit analyses is by no means easy (see story, Page 87). As a result, the city's Data Service Bureau has initiated a number of pilot projects. The object is to gain some experience in the use of office technology which can be replicated, thus obviating the need for detailed cost-justification procedures to be implemented every time a new piece of office automation equipment is proposed.

The first public service chosen for a pilot project was the city's fire department. The department chose a Wang Laboratories, Inc. Mailway-based elec-

tronic mail system which would allow city fire chiefs responsible for different areas of Los Angeles to communicate with one another via a Wang VS/100 host computer. The system was installed in June.

Kristin Heffron, senior systems specialist responsible for office technology, explained, "The experiment dealt us some surprises because we discovered that mail does not travel horizontally between fire

chiefs. It travels vertically between fire chiefs and subordinates. As a result, the system was not used very much."

In an attempt to rectify the situation, the Data Service Bureau installed stand-alone Wang OIS/115 and Wang System 5 machines in three fire battalion headquarters around the city.

"We learned a great deal about what we want in an electronic mail system as a result of

this pilot project," systems specialist John Calderas reported. "We found that the payoff in terms of productivity would be in vertical communications. We now need to identify which types of communications are suitable for electronic mail and which type need to have voice or face-to-face communication."

He added that while the pilot gave valuable feedback on what to do and what not to do, it also became clear that such an electronic mail project is difficult to systematize and, therefore, difficult to cost justify.

The systems used in the project were subject to long time delays, Heffron added, and so the city is going back into the market to bid for a new system.

"Because of the great distances in Los Angeles, there are obviously going to be considerable communications problems and we need a host-based communications system that can bring all the information into a central location and then re-route it to the appropriate loca-

(Continued on Page 91)

Competitors Share Knowledge

LOS ANGELES — The elusive search for answers in the new and rapidly growing area of office technology has led to some major end users here sharing their knowledge — even with their fiercest competitors.

About 18 months ago, a number of organizations here decided to set up the Los Angeles Office Automation (OA) Council and to do things a little differently than other similar organizations.

Consisting of some 25 companies including Northrop

Corp. and Hughes Aircraft Co. in the defense field, the Los Angeles Department of Water and Power and rival firms in the oil, film and banking industries, the council determined to confront major issues head-on and not stifle discussion among competing companies.

"The field of office automation is so new and changing so rapidly that we all have more to learn than to lose by sharing information with one another," explained Philip James, chair-

(Continued on Page 86)

Small System Handles Massive Growth

LOS ANGELES — By adding one employee and one small business computer to its accounting department, a multiple-housing developer has been able to handle a sevenfold increase in housing projects in one year.

"We found ourselves in the very desirable but difficult situation of having to accommodate extraordinary growth over a very short period of time," said Jim Morgan, vice-president of J&D Carley Corp.

Through the Los Angeles Community Redevelopment Agency, Carley was awarded the contract to develop afford-

able housing in the form of condominiums and some apartments, including 20 separate developments covering 211 acres in the Monterey Hills area of Los Angeles. By early 1983, 12 of the 20 projects were substantially sold out, and Carley expects to complete 1,700 units by late 1984.

The increase in business was simply too much for Morgan and his bookkeeper to handle manually, and he knew the only way to accommodate such an increase was through automation. "We began searching for a small business system that would increase our efficiency

and productivity without having to hire more people to do the work manually," he said.

Having worked with a computer service bureau at a previous company, Morgan believed that the advantages of using an in-house system over an outside bureau were many, especially in accessing timely information without delays. "With an outside bureau, job-cost information of an immediate nature just took too long to receive to do us any good, and that was a major factor influencing our decision to install our own information processing system," he added.

Morgan looked at three different small business computers and chose System 200 from Basic Four Information Systems Division, largely because of its compatibility with the software of its parent company, MAI's Application Software Corp. This software was suited to Carley's needs as a construction company.

Moderate Software Changes

"Before we purchased the system," Morgan said, "we looked at the available software packages that were keyed to our industry. We chose the MAI Job Cost package. The solutions it offered in conjunction with the System 200 were the closest to what we were looking for." In the end, there were only moderate changes to the software that had to be made to fit Carley's particular applications.

According to Morgan, speed and accuracy are two of the key

features that make the computer so valuable to the operation. The System 200 provides 20M bytes of disk drive storage and has 48K bytes of memory with two terminals and a 150 line/min printer.

"With the old manual system," he said, "we had to wait until the end of the month before we could see how close to budget we were on any part of the job. The computer has changed all that — we can catch problems before they get out of hand."

"For instance, we can check out labor or contract costs on any phase of the project at any time. If they are running higher than expected, we can address the problem immediately."

In addition to its speed, Morgan points to the computer's ability to provide accurate information and timely reports, which are produced in clear, concise formats. "To achieve the same overall results manually, we'd have to hire an additional four or five people in my department," he said.

Whereas the introduction of office automation may face resistance by employees in some companies, Carley's staff saw the benefits instantly. "We have a small company, and all of us see how the use of a small business computer has increased productivity and profits," Morgan said. "We've hit our goal of \$40 million in revenues in the last fiscal year, and with a total company staff numbering approximately 20, I'd

(Continued on Page 91)

ADR/ETC Word Processing Updated for IBM Mainframes

PRINCETON, N.J. — Applied Data Research, Inc. has announced Release 2.0A of ADR/ETC, an on-line word processing system for IBM mainframes.

ADR/ETC provides facilities for document drafting, editing, typing and revisions. Users can create, update and examine documents on-line and can link word processing and data processing, a spokesman said.

The new release includes "soft" hyphenation, a feature which allows users to designate where a word should be hyphenated. The release also features more comprehensive terminal usage, allowing users to establish personal default composition parameters for newly

created documents, the spokesman said.

New requests allow several options when copying documents. Documents may be copied in formatted as well as non-formatted form. Shorthands may also be copied using a new terminal request. Also provided are enhancements to other existing terminal requests and additions to the text command set. The permanent license price starts at \$22,500 for OS environments, \$17,500 for DOS environments and \$13,100 for IBM models 4321, 4331, 370/115, 370/125, 370/135, 370/138 or plug-compatible computers. ADR is located at CN-8, Rt. 206 & Orchard Road, Princeton, N.J. 08540

Competitors Form Council to Share Office Tech

(Continued from Page 85)
man of the council and director of strategic planning at Northrop.

Member companies give detailed presentations of their work in sensitive areas such as electronic mail, voice store and forward systems, teleconferencing and personal computers. For example, Security Pacific Bank recently reported on the implementation of a voice-mail system in its organization even though another bank competitor was present at the meeting.

Sometimes the discussions are round table affairs over dinner in which members discuss what they are currently doing in their respective companies. On other occasions, one member will make a presentation on a particular facet of his work and then invite feedback from other members, James said.

"It is one of the best ways for each of us to keep up with state-of-the-art technol-

ogy," he noted. "It is very beneficial to us to have a forum in which we can test out our ideas and we have discovered numerous pieces of useful information which have kept us from going down the wrong track in our respective companies."

In an attempt to educate senior management about the issues involved with office automation, council members recently organized

a symposium for top executives from their respective companies in which the activities of the council were presented.

In June, the council plans to hold a personal computer workshop, with the aim of educating members about the key issues involved in managing microcomputers. The OA executives will attempt to answer a number of important questions includ-

ing what should be controlled by the OA department and what should be left up to end users.

"Within the council there is a broad consensus that personal computers are going to grow, that a lot of training and education of end users is needed and that we need to have policies in place which can deal with this phenomenon," James asserted.

Most members, he claim-

ed, believed that vendors were not doing as good a job as they could be in coordinating new OA technology. They were, he asserted, less sensitive to user needs than they should be, more interested in selling their own products than they were in solving problems and insufficiently concerned with the problems of integration between different vendor equipment.

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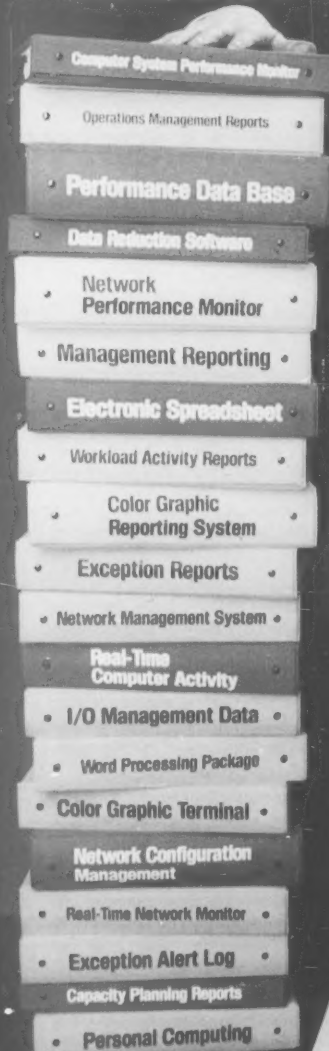
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Not Through Cost-Benefit Analysis Council Head Says Assess OA More Creatively

LOS ANGELES — The real advantages of office automation cannot be assessed through traditional cost-benefit analysis and more creative approaches need to be introduced.

This is the view of Philip James, chairman of the Office Automation Council of Los Angeles, an association of 25 large corporations in a

number of industries, including aerospace, public utilities, law and films.

"Many of the benefits of office automation are not known in advance, but they are nevertheless real and we will need to come up with an approach that is other than the usual cost-justification process," he said in a recent interview.

James, who is also director of strategic planning for data processing operations at Northrop Corp., cited the case of one of the council's members as an illustration of the kind of creativity that is needed.

The company, working in the consumer products field, wanted to use teleconferencing in its team-planning pro-

cess. The project could not be justified simply in terms of savings in business travel, so the company's office automation specialists demonstrated to senior management that by using teleconferencing facilities a new product could be introduced two months earlier than originally envisaged.

The problem, James said,

is that top management is suspicious of new approaches and office automation executives have so far been largely unsuccessful in getting their attention because the problem is not a top priority with senior managers.

James identified a number of questions that need to be resolved in any approach to measuring the usefulness of office technology:

- How do you measure productivity in executives, senior professionals and mid-level managers?

- How do you determine if there has been a change in productivity for people with these kinds of unstructured jobs after office automation has been introduced?

- What do you measure before and after its introduction?

"The choice is often between making a detailed study, introducing techniques for measuring productivity that involve data collection and analysis, or taking the risk and putting something in place that will track overall organizational performance but will not do a detailed study before introduction. I favor taking the risk," he added.

James asserted it was not feasible to carry out detailed studies every time a new piece of office technology is proposed. According to him, a tremendous power struggle over office automation control has been taking place in many companies, and data processing is by no means assured of victory.

"Office automation is going to be a powerful generator of management change in companies that will interrupt existing power relationships at all levels of an organization," James added.

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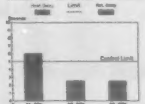
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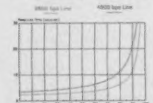
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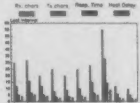
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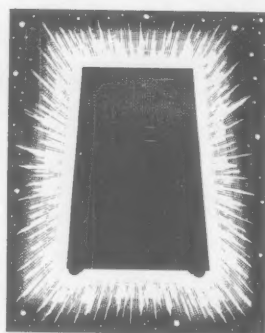
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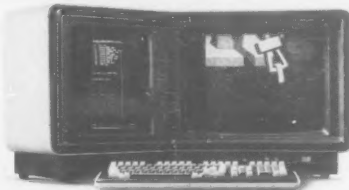
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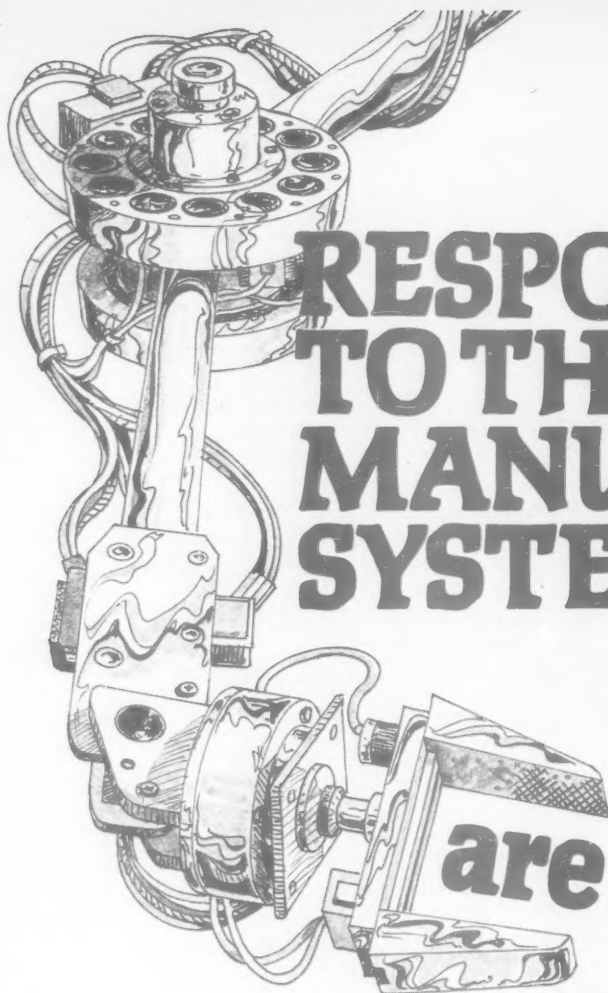
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Serif Word Processing Systems Receive 15% Price Reductions

MINNEAPOLIS — Wordtronix, Inc. has announced a 15% price reduction for its Serif word processing systems.

Prices now range from \$4,900 for the single-disk, full-page display that connects to electronic typewrit-

ers to \$7,900 for the dual-disk, full-page display with a 350 word/min printer and extended capability software, a spokesman said.

More information is available from Wordtronix at 9950 W. 74th St., Minneapolis, Minn. 55344.

City's Projects Give OA Analysis

(Continued from Page 85)

tion," she added. Under such a system, Heffron explained, if the city attorney wants to communicate to the city clerk via electronic mail, he would send a message to the host file that would then reroute the message to the clerk's terminal. Such rerouting would be transparent to the user.

Following the project in the fire department, the Data Service Bureau is now in the process of launching three pilot projects within the city's Transportation Department in an attempt to gain further knowledge about cost/benefit analysis in office automation.

The three projects — personnel functions within the department, a taxi driver complaints system and a district traffic investigation system — were all operated manually prior to the pilots. Each project is subject to the same measuring techniques:

- Identifying individual tasks within each project.
- Measuring how long it takes to perform a task prior to the project and what changes have occurred once the experiment is complete.
- Estimating the cost of implementing an office automation system and comparing it with current operating costs.

The personnel functions pilot project is now up and running. It

Small Business Unit Handles Big Growth

(Continued from Page 85)

say we've done well on both counts." Morgan offered some advice to other construction companies looking to purchase a small business computer. "Never buy a system based on cutting accounting costs. Anyone purchasing a computer to reduce [certified public accountant] bills or clerical staffing is asking for problems," he said.

"Choose the software first, and make sure that it best fits your operation's applications," he advised.



'Is This What They Call Building a Better Mousetrap?'

WP System Targets DEC

SAN FRANCISCO — Horizon Software Systems, Inc. has announced that its Horizon Wordprocessing system for Bell Laboratories' Unix-based computers is now available for Digital Equipment Corp. computer systems through International Data Services, Inc.

The menu-driven integrated software system handles a wide range of office capabilities and features built-in Help messages, according to the vendor.

Horizon's Wordprocessing is available for \$1,450 from International Data Services at 1020 Stewart Drive, Sunnyvale, Calif. 94086.

Feeder Unveiled For 3M's FS-6

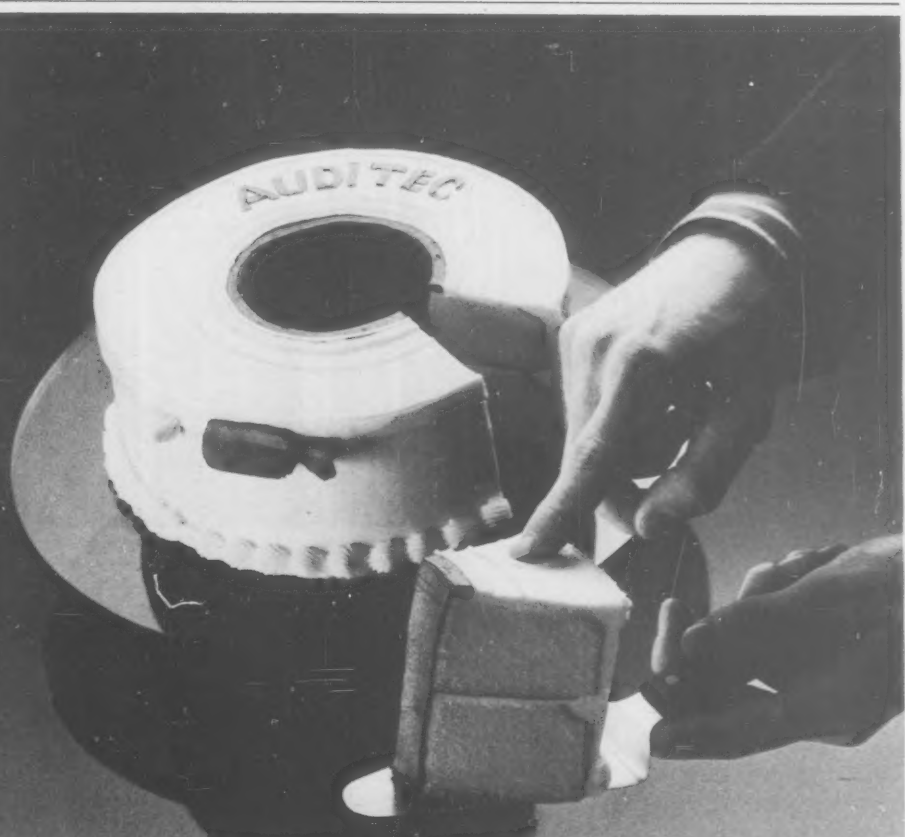
ST. PAUL, Minn. — The File Management Systems Division of 3M Corp. has unveiled an automatic document feeder for its FS-6 Micrographic Camera-Processor.

The document feeder reportedly operates in three modes: automatic mode to obtain 1,200 documents per hour, semiautomatic mode and a sheet sensor mode.

The feeder can be mounted onto any existing FS-6 Micrographic Camera-Processor, a vendor spokesman said.

The FS-6 with the document feeder costs \$11,200.

More information is available from the vendor through Box 33600, St. Paul, Minn. 55133.



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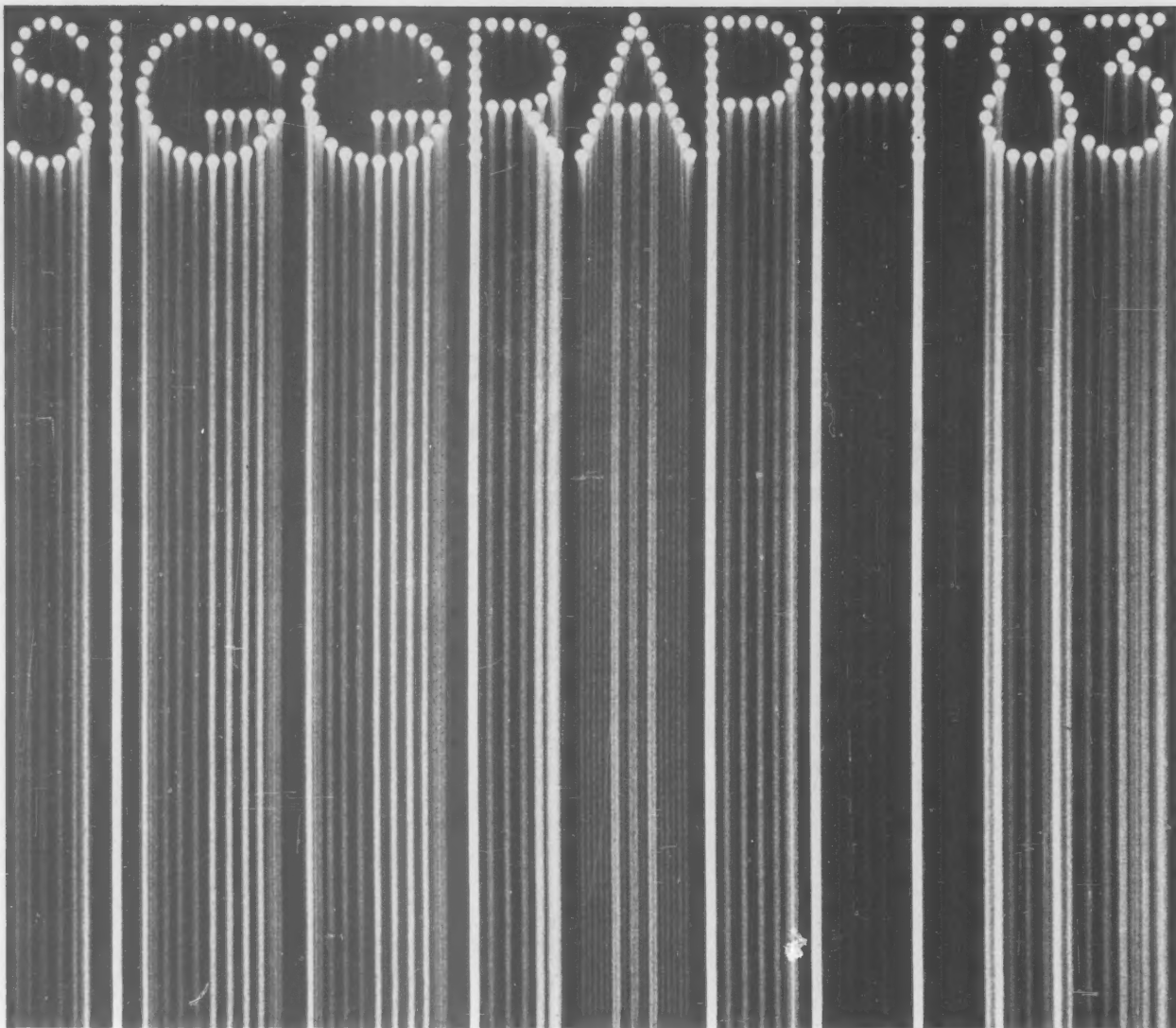
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Separate Criminal Probe Ongoing SEC Sues Paradyne Over Contract Fraud

By Bill Laberis
CW Staff

TAMPA, Fla. — Charging that the company employed fraud and deceit in obtaining an \$84 million contract from the Social Security Administration (SSA), the Securities and Exchange Commission (SEC) has filed suit in federal court here against Paradyne Corp. of Largo, Fla.

And in a separate investigation related

to the contract award, the inspector general's office of the Department of Health and Human Services in Atlanta has acknowledged it is following leads that could result in criminal charges being brought against Paradyne officials.

According to Robert Simon, special agent with the inspector general's Atlanta office, investigators from both the SEC and his office have been scrutinizing the

contract award, made in March 1981, for about a year. The investigations started along parallel paths, but are now proceeding as separate and distinct efforts, he said.

The SEC, Simon said, probably revealed its case now "to protect the public, Paradyne's shareholders." Trading in Paradyne's stock was temporarily halted on the New York Stock Exchange last Monday, and when it resumed the stock tumbled nearly \$8 to \$27.

The SEC's complaint seeks both temporary and permanent injunctions against Paradyne regarding the SSA contract. The suit charges, among other things, that Paradyne workers disassembled a Digital Equipment Corp. PDP-11/03 minicomputer, relabeled the parts to bear the Paradyne logo and then used the machine as its own demonstration model during prebid activities.

Further, the complaint alleges that two Paradyne engineers, acting on orders from their superiors, dummied a P-2811 encryption device also used in the prebid demonstration. The device used, the SEC charged, "was nothing more than an empty box with blinking lights."

Asked when working versions of the P-8400 intelligent terminal and data encryptor were introduced to the market, a Paradyne

(Continued on Page 97)

Special Investigative Unit Formed To Protect DP Industry's Secrets

By Jeffery Beeler

CW West Coast Bureau

SAN JOSE, Calif. — Silicon Valley's law enforcement authorities have organized a special investigative unit whose sole mission is to protect Silicon Valley's electronics vendors from the pilferage of their products and know-how.

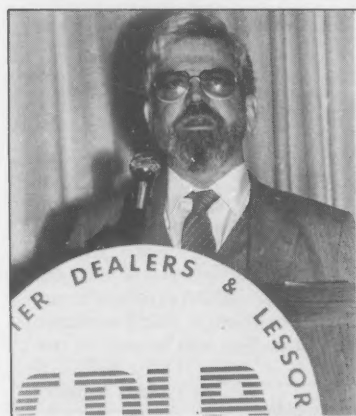
When it swings into action later this month, the District Attorney's Technology Theft Association (Datta) will become the first law enforcement agency in the valley's history to specialize in battling high-tech crime.

As its name suggests, Datta will come

under the direct control of the District Attorney of Santa Clara County, which encompasses Silicon Valley. The group's membership, which initially will include 18 investigators, will be drawn from the detective staffs of the county Sheriff's Department and eight of the area's municipal police forces.

Each of the unit's investigators will receive 40 hours of intensive technical training in a variety of electronics and crime-related subjects ranging from hardware and software to the inner workings of Silicon Valley's high-tech theft rings. Such

(Continued on Page 98)



"They lapped it up, like a dog in a meat market." — James P. Hassett

Trustee Says OPM Leasing Fraud Shows There's No Free Lunch

By Bill Laberis
CW Staff

MIAMI — "They lapped it up, like a dog in a meat market."

It was with such voracious appetite that users, lenders, brokers and lawyers consumed every aspect of the computer leasing fraud served up by OPM Leasing Services, Inc., James P. Hassett, OPM's court-appointed trustee, said.

Speaking here at the spring meeting of the Computer Dealers and Lessors Association (CDLA) recently, Hassett said users in particular should have realized "there's no such thing as a free lunch."

Currently, the two co-founders of OPM are each serving lengthy federal prison sentences for engineering the massive leasing fraud that bilked investors and users out of an estimated \$500 million.

When revealed in March 1981, the fraud dealt a weighty blow to the credibility of the so-called third-party or independent lessors, as exemplified by the CDLA members. But Hassett, who was introduced by CDLA Executive Director James Benton as "a real friend of our industry," said the swindle could have occurred in any lease market.

(Continued on Page 96)

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Firm Abandons Mini Service to Develop Turnkeys

By Bob Johnson

CW New York Bureau

NEW YORK — Not all service bureau executives are adapting the same way to the proliferation of microcomputers and their user-friendly

Vendor Predicts Low-Cost Micros

By Robert Batt

CW West Coast Bureau

SAN FRANCISCO — End users can expect to have the power of a Digital Equipment Corp Vax-11 supermini at the price of an automobile (\$5,000 to \$15,000) in the very near future.

This prediction was made by Gene Finkler, president of Cupertino, Calif.-based Silicon Valley Micro, a microcomputer manufacturer, in a speech at the recent West Coast Computer Faire held here.

Speaking on 32-bit microcomputers and microprocessors, Finkler asserted that the new generation of 32-bit microcomputers will be arriving in substantial numbers next year. He reportedly based his prediction on confidential information he received indicating the 32-bit microprocessors on which the new microcomputers will be based are already in the advanced stages of development.

"The future holds an increasing emphasis on price/performance for both microcomputers and microprocessors," he said. "To get the price down, nearly all production will be done either offshore in low-wage countries or entirely by robotics inside the U.S."

Six manufacturers, he claimed, are working on these chips. The National Semiconductor Corp. NS 32032 microprocessor will be available next quarter, he said, followed by Motorola, Inc.'s MC 68020 and Zilog, Inc.'s Z80000 at the end of the year.

Intel Corp's iAPX 386 will be available in the second quarter of 1984, and two other companies — Hewlett-Packard Co. and Bell Laboratories have developed 32-bit microprocessors for internal use only.

The MC 68020, Finkler said, part of the MC68000 family, is software-compatible with Motorola's 68008, 68000 and 68010. The Zilog and Intel chips, he said, contain characteristics similar to the chips of their National Semi and Motorola counterparts.

business applications.

Instead of bucking a perceived movement of clients buying in-house, microcomputer-based systems, Automated Business Systems, Inc. of Waterbury, Conn., has changed from being a minicomputer-based service company to one that offers clients turnkey systems featuring software support and maintenance.

Francis Jacaruso, president of the company, said that he is replacing "a lot of the minicomputer work" his company had performed with turnkey microcomputer systems installed at client companies.

"We have more or less abandoned our service-type business and are concentrating on client's applica-

tions needs," he said. "I believe that people shouldn't have to pay X number of dollars a month for a service bureau when microcomputers and available software can do the job easily," he said.

Jacaruso maintained that the choice of whether to use a service or have in-house equipment is based on the client's application and usage requirement. But, he said, many companies can benefit from readily available software like Visicorp's Visicalc where they can do "down and dirty" processing quickly and inexpensively.

When asked about companies outgrowing their first systems and then being faced with more substantial DP costs and personnel needs, Jacar-

uso replied that the company that grows quickly will probably be earning enough to afford needed upgrades.

Another service company, Tel Computer Service on Long Island, N.Y., is similarly changing its focus without scrapping its service bureau duties. Pat Zummo, a partner in the company, said that Tel Computer Service is moving away from its initial thrust of accounting services to providing clients software support.

"We are seeing more clients interested in buying their own systems, and we are attempting to service them, especially on the software end," he said. "We also supply them with the hardware that meets their specific requirements."

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Despite Micro Glut, Gloomy Forecasts Survey Reveals DP Service Firms Surviving

By Bob Johnson

CW New York Bureau

NEW YORK — A Computerworld telephone survey of service bureau executives has found that the computer service business is surviving by adapting despite the proliferation of microcomputers and some gloomy predictions from industry observers and small-system dealers.

The logic behind the doom and gloom is that the microcomputer's low cost, ease of use and available packaged software would provoke small- to medium-size service customers to buy computer systems rather than pay a service company to handle DP chores.

But service

companies question this logic. Although most admitted that, in some small business situations, it is more cost-effective to use an in-house microcomputer, most also said that a majority of users will eventually need more space to do their work, more overall DP expertise and considerably more money to do what needs to be done to automate fully.

'There is great emphasis put on the glamour of these systems. But when users understand that they must buy hardware and software from different places, and then have software written and then seek maintenance, the glamour wears off.'

Bill Engle, national marketing manager for Xerox Computer Services in Los Angeles, said the microcomputer market is perceived by users as the preferred means of meeting DP demands.

But, he noted,

"We have found that these small systems are much more difficult to install, maintain and operate than users first thought. The front-end sizzle, where things like screens and

menus appear to be user-friendly at first but lack some essential capabilities later on."

Xerox's customers — companies with sales of \$7 million to \$20 million — are finding that DP expertise in the form of system operations, data base management, archiving records and system configuration are responsibilities of an in-house operation not always recognized by users, Engle said.

Users, he said, often do not address the expandability issue, instead buying a minimally configured system to meet their initial needs and finding later it cannot meet expanded requirements.

William Neal, president of the Commercial Services Group of Automatic Data Processing, Inc. (ADP), said microcomputers are a "tremendous opportunity" for the service company that can adapt technologically to offer attractive packages and services.

"There is an enormous oversimplification as to how much of a threat the microcomputer is to the service industry," he said. *"There is great emphasis put on the glamour of these systems. But when users understand that they must buy hardware and software from different places, and then have software written and then seek maintenance, the glamour wears off."*

Al Cohen, president of New York-based Atlantic Computer Time and Service Co., concurred, saying that the choice between microcomputer systems or a service company depends on the types of applications being processed.

"If you have a small amount of processing without long storage requirements, you're OK as far as a small in-house system," he offered. *"But if you're in a business like the kind we service [mortgage lenders], you will require more storage capabilities and more equipment."*

Wendall Stephenson, chief executive officer of Stephenson Financial Services, Inc. in Los Angeles, said that the days of the "typical payroll processor" service bureau are numbered. But the service company that offers software and DP management and expertise will remain healthy.

"Sure, small-system hardware is cheaper, but the people who create the applications and have the DP know-how are more expensive," he said. *"In a static environment, a small system might be OK. But a business with an increasing profit center will need more computing, which translates into larger systems and more people."*

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3. Computer Applications

Check All That Apply:

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- C ☐ Research/Scientific
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- F ☐ Other (specify)

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- B ☐ *Q Bus (11/03, 11/23, 11/33)
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'You'd Be Depressed Too, If All Your Readouts Kept Proving the Boss Wrong.'

OPM Fraud Shows User Greed, Trustee Says



James Benton, executive director of CDLA, is jokingly presented with appropriate "neckware" as a remembrance of the OPM fiasco.

CW Photo by B. Laberis

(Continued from Page 93)

"Unfortunately for you, it was computer leasing," he remarked.

Since his appointment as trustee, Hassett and his fraud investigators have subpoenaed thousands of OPM-related documents and interviewed over 150 witnesses, co-perpetrators and victims of the crime. From this comprehensive probe, Hassett has drawn some rather surprising conclusions about the case, conclusions he revealed in part in advance of the release of the trustee's final report later this month.

For one thing, he said, the brothers-in-law who ran OPM, Myron S. Goodman and Mordecai S. Weissman, knew very little about the computer leasing business. They ambled

from deal to deal, largely with the intent of covering their criminal past rather than attempting to forge any sort of business strategy.

Their market ignorance notwithstanding, the fraud reached proportions of full-blown audacity when Goodman and Weissman began financing the same phony lease transactions at three and four lending institutions, Hassett said.

OPM's investment broker, Lehman Brothers, Kuhn, Loeb, Inc., did virtually nothing to verify the financial viability of its client, Hassett continued. Had Lehman Bros. bothered to check, it would have discovered that just one OPM customer, Rockwell International, "was on paper leasing about 50% of all mass storage in the U.S.," he remarked.

Further, OPM's financial statement, presented periodically to Lehman Bros. for inspection, showed clearly at one point that OPM's equipment purchase obligations exceeded its lease commitments by some \$100 million. This glaring accounting anomaly was either overlooked or ignored by Lehman Bros. analysts.

Hassett indicated that there is disturbing, although not conclusive, evidence that some of the players in the OPM charade — including one unnamed bank — became aware of the fraud long before it was made public. But instead of reporting it, he said, they took steps to protect their own stakes in OPM.

By the time the fraud had reached high port, Goodman and Weissman had groomed a number of insiders working within user organizations to help "expedite" OPM leases. Hassett's investigation has revealed that at least \$600,000 was paid to such individuals.

What will become of OPM now? Oddly enough, it may well "rise from the ashes like a phoenix."

GTE Awarded USDA Contract

VIENNA, Va. — GTE Telenet Communications Corp. has been awarded a contract by the U.S. Department of Agriculture (USDA) to supply all of that agency's data communications requirements through 1990. The estimated value of the contract over its eight-year life is approximately \$160 million, according to J. David Hann, president of GTE Telenet.

The USDA contract is the single largest contract ever awarded to a public packet-switched network and "signals a new era for GTE Telenet," Hann said. The Telenet public network services provided under this contract will replace the six existing major independent network types that the USDA currently operates and reportedly will save the department an estimated \$120 million.

A wide variety of applications will be supported, including programs relating to environmental improvement in resource development; agricultural marketing, use and distribution; food stamps; research and education; the Forest Service; and the Farmers Home Administration.

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Banner Year Predicted For Computer Lessors

By Bill Laberis
CW Staff

MIAMI — A combination of IBM's ambitious growth plans, healthier financial markets and an end to the nation's economic malaise will produce a banner year for independent computer lessors, said some dealer executives at the spring meeting of the Computer Dealers and Lessors Association (CDLA) here recently.

Others, however, expressed concern that the so-called third-party or independent dealers increasingly run the risk of becoming submerged in an IBM-dominated sea, especially since IBM has shaken loose from a U.S. government antitrust suit. At present, about 95% of the computer lessors' business is in IBM equipment.

To Kenneth Pontikes, president of Comdisco, Inc., and Edward Chorney, chairman of CMI Corp., IBM's de facto drive to record as many equipment sales as possible this year bodes well for both lessors and users. Each said IBM recognizes the CDLA membership as a powerful vehicle for effecting equipment sales, a vehicle to be used in concert with IBM's aggressive pricing and product strategies to fatten the bottom line.

"The sheer volume of business IBM wants to do this year dictates that they'll take whatever steps are needed to do so," said Pontikes, who predicted a record year for Comdisco. "Obviously there's been some fear and trepidation in the last year because in the past you always knew ahead of time what IBM would do... But I think the biggest fears of IBM are in the [plug-compatible manufacturer] market, not really among us."

Gerald L. Minsky, president of Technology Finance Group, Inc., agreed with Pontikes, saying that John Akers, IBM's recently appointed president, "has got to make his sales numbers this year. I look for positive things from them, as far as we're concerned."

"Clearly, IBM is in the right time of its product cycle now and in the right economic times as well," Minsky said. "I think this situation will work to our advantage."

Minsky said that profit margins in computer lease deals have been on the increase, resulting in renewed interest by institutional lenders in the leasing market. The increased margins, coupled with lessors taking fewer risks in writing lease deals, has also translated into higher lease costs for users in some cases, Minsky added.

More Risk

Somewhat more cautious, George Heilborn, CDLA chairman and chairman of IPS Computer Marketing Corp., remarked that IBM's aggressiveness has added to the risk of writing lease deals. Dealers, Heilborn said, "are continually at risk when IBM decides on a major price change or product announcement. You have to be much more careful now in writing deals."

While agreeing that IBM's market directions in 1983 will stimulate the overall quantity of equipment sold and leased, particularly used equip-

ment leased though third-party dealers, Heilborn questioned to what extent IBM's purchase-over-lease pricing strategy might bite into the lessors' margins.

"But through the [IBM] Credit Corp., IBM has now become a true lessor," Heilborn added. "So it has a vested interest in maintaining residual values of equipment in the field... They're certainly capable of becoming more aggressive, but I don't look for them doing anything to dominate the lease market completely. We're fairly important to them."

But at a workshop hosted by Ambrose A. Carr Jr., IBM's director of industry relations, CDLA members expressed concern over the relationship the IBM front office will cultivate with the fledgling Credit Corp., established last summer. In particular, some members asked Carr whether the Credit Corp. would be privy to pricing and product information long before the independent lessors are notified.

SEC Charges Contract Fraud

(Continued from Page 93)

dyne spokesman contacted last week said he did not know.

The company resorted to these frauds because, at the time of the demonstrations, Paradyne had neither a working model of a P-8400 intelligent terminal system nor a P-2811 encryptor, the SEC contends.

Instead, after winning the contract, Paradyne engineers began "working virtually around the clock" to build their own version of the equipment for delivery to SSA field offices. But many of the 1,850 units delivered thus far "do not work properly," the suit charges, refuting what Paradyne has said about the systems' performance. The eight-year contract calls for the delivery and maintenance of up to 2,600 intelligent terminal systems.

As a result of the alleged fraud and the contract award, Paradyne sold common stock and issued shareholder reports "that concealed the manner in which it procured and performed under the contract," the SEC said. This action formed the basis of the SEC suit.

Contacted last week, a Paradyne spokesman said his company denies the charges, saying, "While the board of directors has not had an opportunity to review the complaint... Paradyne believes that it competed for, won the contract with the SSA fairly and in compliance with the terms of the SSA's request for proposals and that its performance under the contract has generally been satisfactory to the SSA."

George Pressly, senior vice-president for corporate development at Paradyne, declined to comment on the SEC's charges that the company altered or forged demonstration equipment.

An SSA spokesman could not be reached for comment at press time.

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GE Moves Into Leasing Mart

SCHENECTADY, N.Y. — Eyeing what it perceives as a developing niche in the computer leasing market, General Electric Co. has begun offering for rent personal computers, starting at about \$200 per month.

Initially, GE is offering the IBM Personal Computer and various models and configurations of microcomputers of Apple Computer, Inc. and Hewlett-Packard Co. GE said it is targeting users in business, scientific, industrial and educational environments.

In addition to hardware offerings of computers, printers and disk drives, GE is also offering several software options and special package configurations for each machine.

GE's announcement comes at a time when the lease market in small

systems, particularly low-end mini-computers and microcomputers, is virtually nonexistent, as equipment purchase costs have plummeted over the last several years.

GE, however, said it anticipates customer interest in short-term computer rental for three reasons: to fill short-term needs for increased data processing capabilities for special projects or at certain times of the year; to explore the capabilities of personal computers; and to evaluate different machines and software before making a commitment to buy.

A GE spokesman said, "We believe business and professional people have a great desire, first, to find out what a personal computer can do for them and, second, to determine which machine suits them best."

Investigative Unit to Target Calif. High-Tech Crime

(Continued from Page 93)
instruction would almost certainly be unavailable to the detective squads of conventional city or county police forces, according to Santa Clara County's Deputy District Attorney Douglas Southard.

In addition to providing its recruits with special training, Datta will seek to stimulate the free exchange of high-tech crime information among the area's various law enforcement agencies and among the local vendors' internal security departments.

This combination of unimpeded communications and highly specialized technical training will greatly

aid area police officers in tracking the movements of high-tech thieves and their booty, Southard said. The result will be an improved ability to solve and prosecute cases involving the theft of Silicon Valley-produced technology.

Specialized Resources

Datta's formation reflects the "growing recognition among those in law enforcement that the electronics community in this area needs and deserves some specialized investigative resources to address their unique problems," Southard said.

Like all Silicon Valley's other law enforcement agencies, the group sits squarely in the middle of one of the hottest areas of high-technology theft. Each year, an assorted host of larcenous rogues, including freelancers, organized crime figures and foreign spies, swipes millions of dollars worth of proprietary technology from area computer equipment, software and semiconductor producers.

Yet the fight against high-tech thieves has fared poorly, largely due to a lack of cooperation among Silicon Valley's existing law enforcement organizations.

"As you might guess, we already have some degree of communication among the various police forces in these kinds of cases, but it's not that good," according to Robert Elliot, Datta's detective squad coordinator. "Among the security managers [of Silicon Valley's high-tech firms] and the local police officers, the level of communication is even worse."

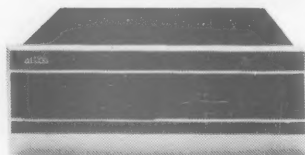
Biweekly Meetings

To address the problem of inadequate cooperation, Datta will hold bi-weekly meetings during which detectives from the area's nine participating law enforcement groups will come together and exchange information about relevant cases.

Additionally, local police officers have always lacked the necessary training in both technology and the workings of the electronics black market.

"The average police officer is simply ignorant about technology and electronics terminology and, like the rest of us, is intimidated by what he doesn't know," Southard said. "We don't have to be engineers, but we do have to know what an Eprom and systems software are. Otherwise, we won't even be able to communicate with the high-tech thieves' victims."

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Zilog Law Suit Charges NEC With Patent Infringement

By Patricia Keefe
CW Staff

SAN FRANCISCO — NEC Electronics U.S.A., Inc. last week refused comment on a \$40 million suit filed against its parent company, Nippon Electric Co., Ltd. (NEC) of Japan, itself and another subsidiary. Attorney Robert Hinckley, representing NEC Electronics, said he could not comment on the suit because his firm is still formulating its response.

Zilog, Inc. filed suit in U.S. District Court here last month against NEC of Japan and two U.S. subsidiaries, charging patent and copyright infringement, unfair competition and trademark violation involving Zilog's Z80 8-bit microprocessor integrated circuits.

Zilog is asking the court:

- For \$10 million to compensate for losses Zilog is alleged to have suffered.
- For \$30 million in punitive damages.
- To enjoin NEC from selling its μ PD780 and μ PD780-1 microprocessors in the U.S.
- To require the Japanese company to destroy its inventory of the μ PD780 series and accompanying literature.

Also named in the complaint were NEC Electronics, based in San Mateo, Calif., and NEC Home Electronics (U.S.A.), Inc., which is located in Elk Grove, Ill. This is the second copyright complaint against NEC in the past few months. Earlier this month, Intel Corp. said it had settled out of court a copyright dispute with NEC related to NEC's sale of reverse-engineered 8088 8-bit and 8086 16-bit microprocessors.

So far, Hinckley said, only the two U.S. subsidiaries have been served with the complaints. Both subsidiaries will be represented by the law firm of Skjerven, Morrill, MacPherson & Drucker. Hinckley acknowledged that Zilog and NEC had been in negotiations for several months prior to Zilog's decision to file suit.

Zilog is alleging that NEC's μ PD780 and μ PD780-1 8-bit microprocessors, announced in 1979, are copies of Zilog's Z80 chip family and infringe on various Zilog proprietary rights.

HP Founders To Step Down

PALO ALTO, Calif. — Both William R. Hewlett and David Packard, co-founders of the \$4 billion company that bears their names, are leaving the executive committee of Hewlett-Packard Co.

Packard, 70, will continue as chairman of the board, a post he has held since 1972, while Hewlett was elected to the newly created post of vice-chairman of the board.

Succeeding Hewlett as chairman of the executive committee is John H. Young, who will continue as president and chief executive officer of the firm. Elected a senior vice-president was Richard C. Alberding, who in January was appointed to head the company's international operations.

The company further contends that NEC has violated federal and state laws concerning unfair competition and trademark infringement. Zilog charges NEC of using the Z80 trademark in its marketing efforts for the μ PD780, thus infringing upon Zilog's trademark.

According to court documents, Zilog obtained a patent in May 1982 for certain features on the Z80 such as its on-chip memory refresh counter; received copyright registration numbers for the metal layer mask drawing of the Z80 in May 1980; and in July 1982, received copyright registration numbers for technical manuals.

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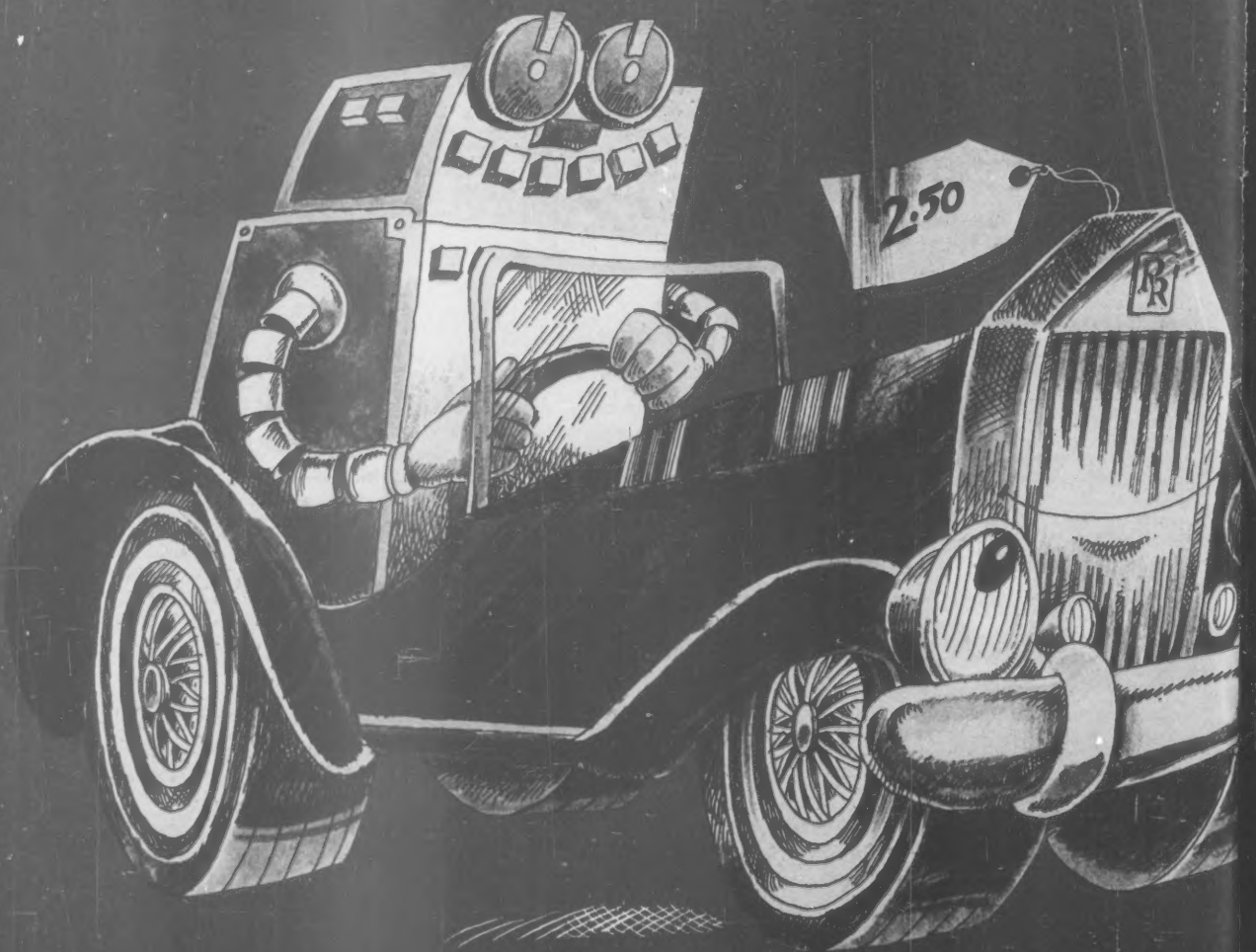
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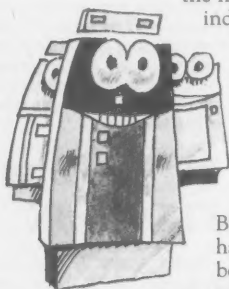
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Most of our publications are weekly newspapers, because so many things happen so rapidly in the computer business (as the headline quote from a prominent industry executive makes so clear). In



only thirty years the industry has gone from the development of the giant Eniac system, through the tube-powered, water-cooled Univac I (the world's first business computer), to the incredibly cheap, battery-powered microprocessor.

But as unbelievable as the last 30 years have been, the next 30 will probably be even more incredible. In the next two years alone, installed power of general purpose computer systems will grow almost as much as it did in the previous 16 years. And the supercomputers of the 90's will transfer data at a rate several hundred times faster than even today's speedy computers! It's hard to remember this is real science, not fiction.

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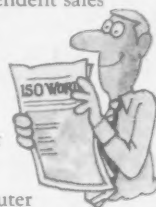
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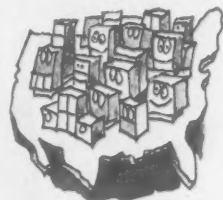
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Dyer Says STSC Losses Not Why He Resigned

ROCKVILLE, Md. — Daniel Dyer's decision to step down as president and chief executive officer (CEO) of STSC, Inc. was motivated by "interest in going on to some new kinds of activity" and not by any factors related to changes in STSC's business, the executive said in a recent interview.

STSC's steady profit growth was interrupted in

fiscal year 1982, when the company reported a loss of \$1.8 million and laid off about 13% of its work force. The company was acquired by Continental Telecom, Inc. in September.

Dyer denied that business pressures played any part in his decision to resign. "I don't think there is any direct connection," he said, adding, "Things are turning

around, very definitely."

The man who founded STSC in 1969 said that his future plans "are to be involved with smaller companies in helping them obtain financing to support profitable growth." He hinted that microcomputers are a special area of interest to him and said he plans to draw on his operations experience in software "because a lot of the

opportunities that are emerging are software-driven products."

William M. Gibson, who was appointed executive vice-president and CEO in September, will take over the CEO seat when Dyer steps down on May 31.

Current customers should expect no major changes in direction for STSC as the result of the Continental Tele-

com acquisition, Dyer said. "I anticipate that there will be substantial synergy with other Continental Telecom operations and directions in the future," he said.

Three years ago, STSC broke out of the time-share business in which it carved out a comfortable niche built on the back of its APL and related applications. The firm moved into the micro market last year and has found it to be lucrative, Dyer said. APL was released for the Radio Shack TRS-80 Model III in June, and the company began shipping APL*Plus for the IBM Personal Computer in December.

"Our base of customers consists of both the remote computing service users and a rapidly growing set of customers using microcomputer software," he said, adding, "and we're finding a fair amount of convergence between the two."

NTT to Buy ITT PABX

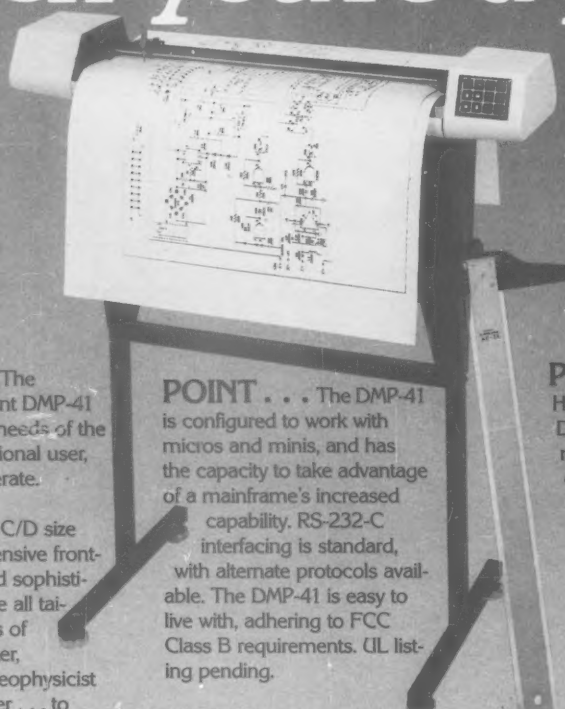
NEW YORK — Nippon Telegraph and Telephone Public Corp. (NTT) announced it will purchase 400 units of digital private automatic branch exchange (PABX) equipment from ITT. The contract is worth about \$5 million.

NTT's procurement of the EP-10 PABX represents 40% of its market for this type of digital PABX, while ITT becomes the first foreign company to sell such telecommunications equipment to the Japanese communications giant, ITT claimed.

Rand V. Araskog, chairman and chief executive officer of ITT, labeled the contract award "a significant step forward in U.S.-Japanese cooperative relations in the vital areas of telecommunications and high technology."

The Japanese and NTT in particular had come under increasing pressure from U.S. manufacturers to open up procurement opportunities to foreign vendors. Of NTT's \$2.5 billion worth of equipment purchases in 1981, only \$36 million accrued to foreign companies.

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Reagan's Weapon Plan to Impact Industry: Exec

By Robert Batt

CW West Coast Bureau

SAN JOSE, Calif. — President Ronald Reagan's call for a high-technology shield against enemy ballistic missiles could have a significant impact for computer manufacturers, with commercial implications for data processing, an industry observer has suggested.

According to Terry Steyer, vice-president of engineering at Technology Analysis Group, Inc., the development of semiconductors and powerful supercomputers will be necessary prerequisite of Reagan's plan.

"If the president's proposals are approved, there is going to be a lot of money dumped into the computer industry, and the increased data processing activity will spin out new products, some of which will have commercial implications," Steyer asserted.

Reagan Speech

In a recent televised speech to the nation, Reagan called for the "intensive" development of a multibillion-dollar, 21st-Century weapons system to shoot down enemy missiles and "to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles."

Technology analysts in California's Silicon Valley argue that to build such a system will require an increase in present computational capability of many orders of magnitude.

One analyst of artificial intelligence systems at SRI International, Inc. in Menlo Park, Calif. commented, "If the president's plan is to succeed, there will need to be real advances in hardware and in the way we use computers."

"The question is how are we going to achieve the throughput that will allow us to provide large-scale computers with the information they need in a very short period of time."

Two research and development projects likely to play a major role in any search for *Star Wars* technologies are already underway, he noted.

One is a \$300 million joint private-Department of Defense (DOD) program to develop "very high-speed integrated circuit technology" (VHSIC) designed to improve on very large-scale integration circuits that form

the heart of today's advanced computers.

The other is a recently announced project to create a supercomputer that will improve the speed, performance and architecture of future military computers under the aegis of Defense's Advanced Research Projects Agency (Arpa).

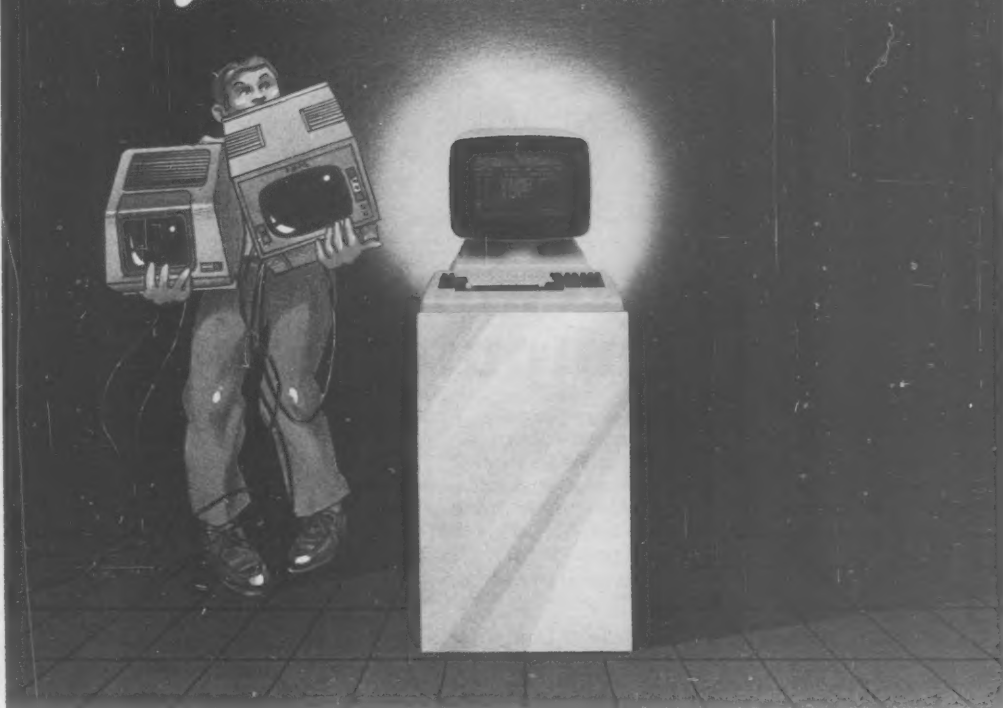
Prototypes in the VHSIC project have already been developed using silicon-based

technologies, Steyer said. As one of the contractors in the project, Honeywell Inc., for example, has been using bipolar technology to develop an image processor, he explained. IBM is believed to be working with negative metal oxide silicon (Nmos) technology for use in general-purpose computers. Other companies involved in the project include Texas Instruments, Inc.; Hughes Aircraft

Co.; TRW, Inc.; and Westinghouse Electric Corp.

The Arpa supercomputer project is a 10-year program to develop a computer 1,000 times as fast (three orders of magnitude) as today's most powerful computer. Although the DOD denies it, some industry analysts believe the project is, in part, an attempt to compete with Japan's Fifth Generation Computer Project.

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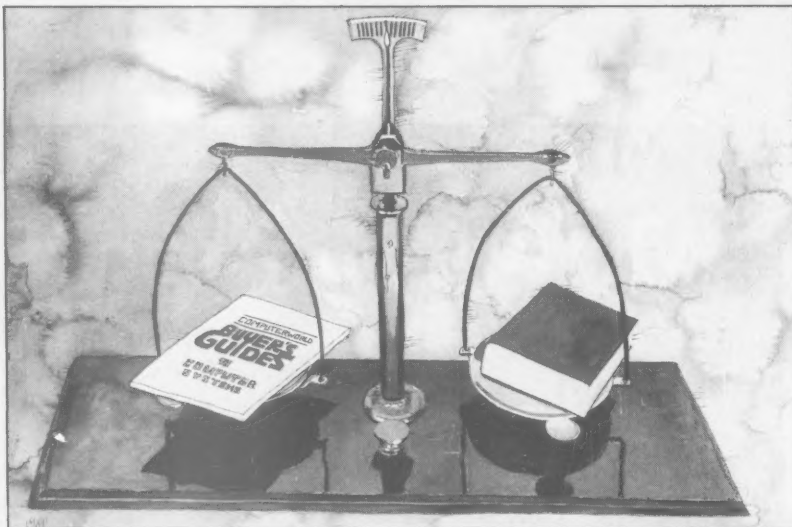
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The Trust wishes to recruit a senior person to coordinate the technical side of these projects. The work will include identification of project areas, selection and liaison with software houses and consultants, evaluation and monitoring of progress. A major responsibility will be to act as a translator between the world of computing and the art history community.

QUALIFICATIONS

The candidate should have a high level of computing expertise, both technical and managerial, preferably with a degree or equivalent experience in information science. Experience in information retrieval or the application of computing to the humanities is very important. Projects currently under way or being planned use advanced work in data bases, bibliographic information, telecommunications, foreign character sets, and video disk. Experience in several of these areas is highly desirable.

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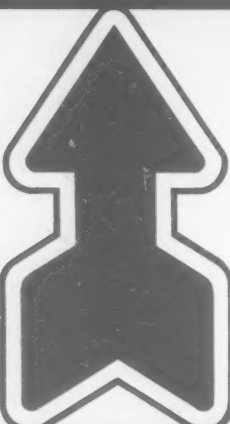
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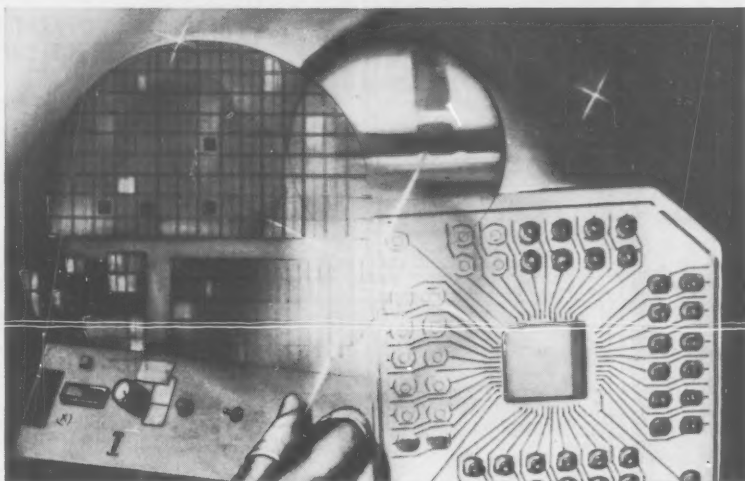
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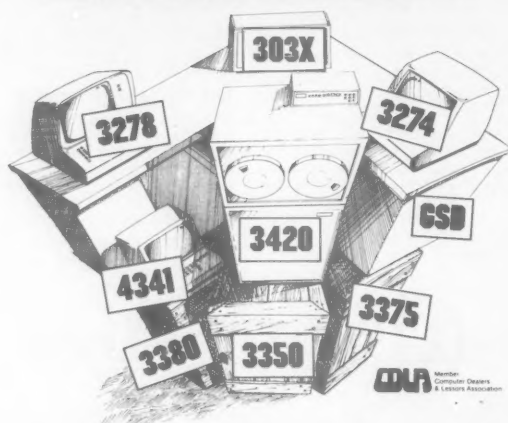
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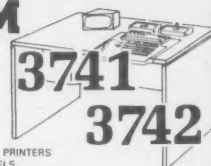


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The County of Fairfax is accepting sealed proposals for Financial Management Information System as covered in Request For Proposal, RFP-3-0529-10-19 until 3 p.m. local time April 27, 1983. No proposal will be accepted that is submitted later than the time and date specified.

Fairfax County hereby notifies all offerors that all proposals received will not be discriminated against on the grounds of race, color, sex, or national origin in consideration for award. All contractors will be required to comply with all applicable equal employment opportunity laws and regulations.

Interested parties may obtain specifications regarding this Request for Proposal by contacting the County of Fairfax, Purchasing & Supply Management Agency, Projects & Contracts Administration Section, 6th Floor, Mayday Bldg., 4100 Chamberlayne Rd., Fairfax, VA 22030. Tel. 703-691-3201, J. R. Fitzgerald. Fairfax County reserves the right to reject any or all proposals.

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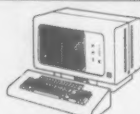
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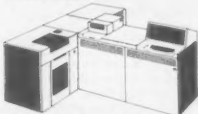
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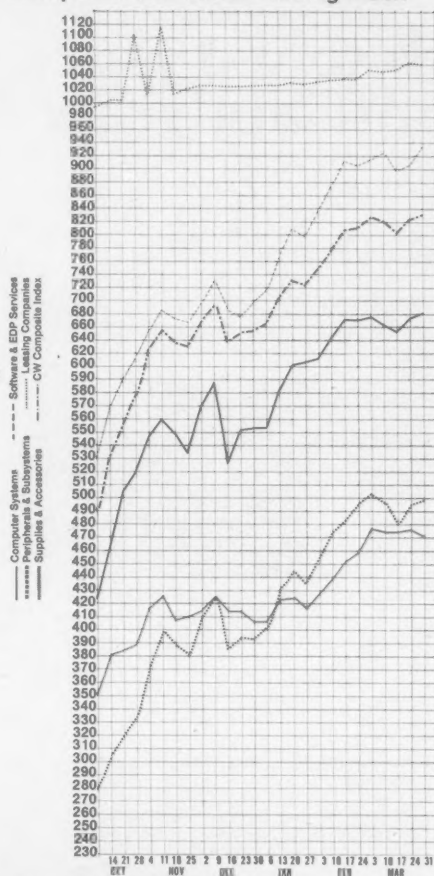
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Computerworld Stock Trading Summary

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CLOSING PRICES WEDNESDAY, MARCH 30, 1983

E X C H		1982-83 RANGE (1)	PRICE		WEEK TUE CHNGE	WEEK PCT CHNGE
			CLOSE MAR 30 1983			
COMPUTER SYSTEMS						
A	ARDAHL CORP	17-44	39 1/4	-4 1/4	-10.7	
N	BURROUGHS CORP	28-48	48	+2 1/8	+4.8	
D	COMPUTER AUTOMATION	7-17	12 3/8	-1	-7.4	
N	CONTROL DATA CORP	21-31	49 1/4	+1 1/8	+0.2	
N	CRAY RESEARCH INC	20-49	43	-5/8	-1.4	
N	DATA GENERAL CORP	20-63	63	+4	+6.7	
N	DATAPoint CORP	11-38	23	-1/4	-1.0	
N	DIGITAL EQUIPMENT	82-132	128 1/4	+1	+0.7	
A	EECO INC	8-12	11 3/4	-1/8	-1.0	
N	ELECTRONIC ASSOC.	5-12	9 7/8	-1/4	-2.4	
N	FLATING POINT SYST	16-37	37 1/4	+2 1/4	+6.4	
N	FULCRUM CORP	22-43	38 5/8	-1/2	-1.3	
D	FURBER	1-3	1/4	0	0.0	
D	GENERAL AUTOMATION	3-8	6 3/4	+1/4	+3.8	
N	HARRIS CORP	20-31	45 3/4	0	0.0	
N	HEMLETT-PACKARD CO	36-87	82 1/4	-7/8	-1.0	
N	HONEYWELL INC	80-104	92 1/2	-2 1/2	-2.6	
N	IBM	57-104	104 1/4	+2 1/8	+2.0	
D	IPL SYSTEMS INC	5-11	8 1/4	-1/4	-3.0	
D	MAGNUSON CORP SYST	2-5	3	0	0.0	
N	MANAGEMENT ASSIST	7-18	15	-1 1/2	-9.0	
D	MINI-COMPUTER SYST	1-2	1 1/4	+1/4	+25.0	
N	MODULAR COMPUTER SYS	8-15	10	-1/8	-1.2	
N	MODNAK DATA SCI	10-19	16 3/4	-1/8	-0.7	
N	NCR	38-114	112 1/4	-1/2	-0.4	
N	PERKIN-ELMER	17-33	27 1/8	+1 1/4	+4.3	
N	PRIME COMPUTER INC	18-45	43 7/8	+1 1/8	+2.8	
N	SPERRY CORP	21-38	37 1/2	+2 1/8	+5.9	
D	TANDER COMPUTERS INC	14-34	28	+1 3/4	+6.4	
N	TEXAS INSTRUMENTS	71-176	168 1/2	+3/8	+0.2	
A	WANG LABS "B"	12-37	33 7/8	+3/8	+1.1	
A	WANG LABS "C"	11-37	34 1/8	+5/8	+1.6	
LEASING COMPANIES						
D	BOOTH FINANCIAL CP	22-36	32	-1/2	-1.5	
N	COMDISC INC	7-26	23 3/4	-1/2	-2.0	
B	COMMERCE GROUP CORP	1-1	1/4	-1/8	-33.3	
D	COMPUTER INVESTS GRP	1-2	1/2	0	0.0	
D	CONTINENTAL INFO SYS	5-22	20 1/4	-1/4	-1.2	
N	DPF INC	5-14	12 1/8	+1/8	+1.0	
D	ITEL	1-3	1 1/4	+1/4	+25.0	
D	LEASAP CORP	1-2	1/8	0	0.0	
N	U.S. LEASING	18-41	41	+1/2	+1.2	

E X C H		1982-83 RANGE	PRICE		WEEK CHNGE	WEEK PCT CHNGE
			1982-83 RANGE	CLOSE MAR 30 1983		
SOFTWARE & EDP SERVICES						
D	ADVANCED CORP TECH	1-5	4 1/2	+3/4	+20.0	
D	ADVANCED SYSTEMS INC	9-24	21 1/2	-1/4	-1.1	
D	ASS COMPUTERS INC	7-22	18 1/2	+1	+5.7	
N	ANACOMP INC	8-23	22 1/4	+3/8	+1.7	
D	ANALYSTS INTL CORP	5-10	10 1/4	+1/4	+2.5	
A	APPLIED DATA RES.	16-54	54 1/8	+3 7/8	+7.7	
D	ARK COMPUTER SYSTEMS	12-38	30 3/8	+1/2	+1.6	
B	ASTRODYNE CORP INC	1-8	5 1/2	+3/4	+15.7	
N	AUTOMATIC DATA PROC	21-40	38 7/8	+5/8	+1.7	
D	CDA COMPUTER ASSOC	5-14	13 3/4	0	0.0	
D	COMPUTER ASSOC INT'L	12-47	40 1/2	+1/4	+0.6	
D	COMPUTER HORIZONS	2-17	16 1/4	+3/4	+4.4	
D	COMPUTER NETWORKS	4-10	8 5/8	+1/8	+1.4	
N	COMPUTER SCIENCES	11-23	19 3/4	-1/8	-0.6	
D	COMPUTER TASK GROUP	8-19	19	+1/4	+1.3	
D	COMPUTER USAGE	2-22	19	+2 3/4	+16.9	
D	COMPUTONE SYSTEMS	13-38	23	-1	-4.1	
D	CONSERV CORP	11-20	15 1/4	-3/4	-4.6	
D	CONSHARE	6-13	10 7/8	-3/8	-3.3	
N	CULLINET SOFTWARE	12-35	32 3/8	+3/8	+1.1	
D	CYCARC SYSTEMS INC	9-18	17 1/4	+7/8	+5.3	
D	DATA DIMENSIONS INC	1-2	2 1/4	0	0.0	
D	DATATAB	0-2	7/8	+1/4	+60.0	
D	DYATRION CORP	2-4	3 5/8	+1/8	+3.3	
N	ELECTRONIC DATA SYST	18-58	58 3/8	+5/8	+1.0	
N	INFORMATICS INC	10-30	28 1/4	+1/2	+1.7	
D	INSYTE CORP	1-3	1 1/4	-1/8	-6.6	
D	IPE COMPUTER MARKET	1-2	1 1/8	0	0.0	
D	KIDICON	12-36	35 3/4	+2 3/4	+36.6	
D	KNIGHT SCI AMER INC	2-28	22 1/4	-1/2	-2.7	
D	MATHEMATICA INC	12-22	18	-1/2	-2.5	
D	MATHEMATICAL APP GRP	12-22	18	-1/2	-2.5	
D	NATIONAL DATA CORP	5-24	20	+1/4	+0.5	
D	PANOSOPHIC SYSTEMS	8-25	23 1/2	+1/4	+1.0	
N	PLANNING RESEARCH	8-16	15 3/8	+1/8	+0.6	
D	PROGRAMMING & SYS	1-4	3 3/8	+1/4	+8.3	
D	REYNOLDS & REYNOLD	17-38	36 1/2	+1/2	+0.5	
D	SET CORP	11-25	23 3/4	+2 1/8	+9.8	
D	SHARED MEDICAL SYST	12-38	38	+7/8	+2.5	
D	SCIENTIFIC COMPUTERS	8-13	11 3/4	-1/2	-4.0	
D	SCITHARE AG	5-17	8 3/4	-1/8	-1.4	
N	TYNSHARE INC	12-30	21 5/8	-1 3/8	-5.9	
A	USG CORP	5-14	13	-1/4	-1.8	
N	WYLY CORP	7-13	13	+3/8	+2.9	

PERIPHERALS & SUBSYSTEMS

P AM INTERNATIONAL	2-4	3 3/8	+1/8	+3.5
A ANDERSON JACOBSON	8-26	17 1/4	-1 1/4	-8.7
D AUTO-TROL TECHNOLOGY	8-21	16	-3/8	-2.8
D BANCITEC INC	7-33	18	-1 3/4	-9.8
A BEHNKE INT'L	4-11	10 1/8	-1/2	-4.7
A BOLT-BERANEK & NEU	12-34	32 1/2	+3/2	+8.7
D CARBEX CORP	2-4	2	+1/4	+14.2
N CENTRONICS DATA CORP	8-20	17 3/8	-1/2	-2.7
D CEC CORP	11-8	9	-1/8	-3.2
D COMTECHNICS	2-14	11 7/8	-1/8	-1.0
D COMPUTER COMMUN.	1-2	1 5/8	+1/4	+10.1

SUPPLIES & ACCESSORIES

N AMERICAN BUS PRODS	11-22	21 5/8	+1 5/8	+8.1
D BALTIMORE BUS FORMS	1-2	3/4	-1/4	-25.0
N BARRY WRIGHT	10-25	24 3/8	-3/8	-1.5
D CYBERNETICS INC	1-1	1 1/2	0	0.0
A DUPLEX PRODUCTS INC	12-22	21 7/8	+1 1/2	+7.3
N ENNIS BUS. FORMS	18-33	32 1/2	-1/8	-0.3
N JN COMPANY	48-82	78 1/4	+3/4	+0.8
N NOORE CORP LTD	28-47	46 5/8	-1/8	-0.2
N NASHUA CORP	8-18	13 1/4	0	0.0
D STANDARD REGISTER	32-68	61 1/2	-1/2	-1.8
N WALLACE BUS FORMS	22-58	52 3/4	+1/4	+0.4

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